AUSTRALIA IN THE WAR OF 1939-1945

SERIES THREE

AIR

VOLUME IV

AIR POWER OVER EUROPE, 1944-1945

AUSTRALIA IN THE WAR OF 1939-1945

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AIR POWER OVER EUROPE

1944-1945

by

JOHN HERINGTON

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PREFACE

THIS volume continues and concludes the story of Australian airmen who served in or beside the R.A.F. in the struggle against Germany and Italy. In general, it covers a period when, both in the Mediterranean and in northern Europe, air superiority, the vital pre-requisite of successful air assault, had already been gained over the enemy. Emphasis thus largely turns from air fighting (although this was by no means lacking in local engagements or in the strategic bombing campaigns) to the total achievement of Allied air power in land and sea campaigns.

Against this changing background of the air war and the very rapid expansion of Allied strategic and tactical forces, the Australian contribution requires consideration on a scale and by methods somewhat different from those adopted in *Air War Against Germany and Italy, 1939-1943.*

Some of the main difficulties of research and presentation of the story of Australian squadrons and individuals in the European air war were noted in the preface to the third volume of this series, and in general still apply to this present study. While the geographical boundaries of the main air war had shrunk, the size of the Allied air forces grew apace during the last two years. Individual and squadron effort tended to be more and more submerged in the frequency and complexity of mounting operations against Germany so that Australian contribution becomes less identifiable or assessable. Even R.A.F. squadron operational records, the main source books for the activities of the majority of R.A.A.F. airmen, tended during constant operations to contain increasingly abbreviated details of actual raids or engagements. Nevertheless, the small R.A.A.F. Historical Records Section which worked within the Air Historical Branch of Air Ministry until 1948 did exceptional work in extracting significant details from the huge mass of primary R.A.F. material with which they were confronted. In particular, the voluminous preliminary narrative and appendixes compiled by Squadron Leader W. Worth have proved invaluable to the writer in the main task of depicting the strategic air bombardment against Germany. Many points have been clarified and additional detail obtained from personal interviews with former R.A.A.F. men, although each year the value of individual recollection of events has naturally tended to diminish. Much help has been obtained from personal diaries lent by men or their next-of-kin, as in these contemporary notations appear droll, idealistic, extrovert and at times deeply penetrating comments on the reaction of citizen airmen both to their own operations and the general circumstances of war. By kind permission, portion of one such diary has been reprinted at Appendix 1.

In the main the statistics in this book are based on wartime compilations, corrected wherever possible by any obviously authoritative reassessment. Passage of time has by no means eliminated all the errors which arose in wartime figures because of differing bases of compilation on units, commands or headquarters, or by the concurrent use of the "short"

(American) or "long" (British) ton in assessing weight of attack against various targets. The author has used his discretion in choosing in each instance whichever of apparently conflicting figures appeared best supported, but has also frequently rounded off to the nearest hundred tons the assessment of bombfall on targets. All statistics except those relating to domestic R.A.A.F. matters must therefore be treated with extreme caution and regarded rather as measures of relative than finite fact.

As in the previous volume the background of military and naval campaigns, of political decisions and strategic planning which so profoundly affected air action, and in which Australians took no part except at relatively minor levels, is recorded only in sufficient detail to make R.A.A.F. effort understandable. Care has been taken to make the broad generalisations give as accurate as possible a picture of prevailing circumstances but undoubtedly many statements if taken out of their context in this volume would give false impressions. There are also many omissions of background events which had no precise relevance to an Australian record. More comprehensive and detailed accounts of campaigns and strategy are available in the United Kingdom Official War History series. By contrast, in relation to the actual detail of squadron or individual exploits, the story has frequently been told from the restricted viewpoint of the actual participants in air operations. It will be seen that crews returning from the same bombing raid frequently reported very different opinions concerning enemy defences, their own bombing or the general success of the attack. Some strikes which appeared to be well concentrated on the target were later found to be relatively unsuccessful; conversely a single bomb well placed in a scattered attack thought to be a failure against a soft-skinned vulnerable target such as a synthetic oil refinery might temporarily halt all production. Care must be taken, therefore, in accepting too literally either the assessments of Australian crews given at debriefing on return from their target, or contemporary official reports.

As far as practicable the night raid reports have been checked against later photographic interpretations, such enemy records as survived and became available, and the United States post-war surveys of bomb damage made in all areas except the Russian zone of occupation. There is much room for doubt as to the precise damage caused during many attacks and it is necessary therefore to give only generalised assessments of success on individual raids; it is also possible only in a minority of cases to separate R.A.A.F. effort from the whole and indicate when Australian bombing was better or worse than the over-all average. Similarly, the problem in most cases of assessing true combat successes against the *Luftwaffe* has proved insoluble, and the claims made for R.A.A.F. fighter and bomber crews must be viewed against the undeniable conclusion that Allied wartime assessments proved nearly always inflated, but in varying degrees at different times.

With air superiority, the nature of aerial warfare became less a seesaw struggle *in* the air between fairly evenly matched forces, and more a

constant application of pressure *from* the air on to military objectives of the ground battles and enemy support potential. Operations became very repetitive and, despite the general flexibility of air power, incidents involving individual airmen became increasingly stereotyped. The choice of what to record from many comparable exploits of those Australians actually engaged in the fighting proved on many occasions extremely difficult. Some experiences of individual airmen have been included because they are particularly relevant to a raid under discussion, while almost identical incidents have been ignored or given passing reference only in contexts where introduction of detail, however heroic, would have impeded the narrative. In general, therefore, the introduction of personal incident is illustrative rather than comprehensive. This Draconic rule of relevance is essential to an over-all history, but readers may find much of the detail omitted here in the various squadron histories and memoirs which are now available. Where a man is first mentioned by name in this volume a footnote provides some brief biographical details, but where the name has already appeared in Volume III of this series the footnote is not repeated.

The author is deeply grateful to the men themselves whose lives in action supply the dominant theme of this book; to all those who have read and commented on sections of the text and to all who have lent personal documents. He has a great continued indebtedness to Mr Gavin Long for patience, valuable advice and sympathetic criticism as General Editor. Some of the preliminary work of literary assistant on this volume was done by Mr J. Seymour but the bulk of it was done by his successor, Mr G. McKeown. He traced material, checked facts, chose the illustrations, wrote the index and made the path of the cartographers, Mr Hugh Groser and Miss Elaine Oates, easier by the excellence of his map drafts.

J.H.

Melbourne,
22nd August 1962.

CHAPTER 1

PLANNING FOR THE INVASION

ON 22nd July 1940, in a broadcast rejecting Hitler's offer of a peace based on recognition of German hegemony in Europe, Mr Eden the British Secretary for Foreign Affairs declared that "we shall not stop fighting until Freedom is secure". Even at this nadir the basic British strategy of re-entering France in force at an opportune time and then defeating Germany on the historic battlefields of France and the Low Countries animated the stubborn self-defence which was immediately required. As early as mid-June 1940 Churchill's fertile mind and aggressive determination had given impetus to the formation of the nucleus of a Combined Operations Command, and of parachute units, as well as to the development of tank-landing vessels and other paraphernalia suitable for amphibious raids. Above all, the spirit which was invoked in the British people, and which was amply manifest to Australian airmen as they arrived in the United Kingdom late in 1940, was one of patience and enduring faith; standing firm was the first requisite but it was not an end in itself but only the forerunner to an advance to complete victory.

Almost four years were to pass before this fervent resolve born in the shadow of defeat was to be put into full and direct practice; but most of the seemingly distant or independent military ventures of the intervening period were tributaries to this main stream of strategy. Once the German attack had been held, first the Italian colonies and then Italy herself should be eliminated from the war before all available strength was turned against Germany. While Britain stood alone this progression was inevitable. A force capable of assaulting and establishing itself firmly on the continent of Europe could not be trained, equipped and assembled, except by hard unrelenting effort over a long period during which the territorial advantages of the Axis powers in Europe must be diminished and the enormous gap between their material power and that of Britain drastically reduced.

By June 1941 Britain herself seemed free from invasion and there were at least temporarily encouraging indications that the U-boat menace in the Atlantic was abating. British commando raids had not progressed far beyond the "butcher and bolt" principle, advocated by Mr Churchill on 6th June 1940 to institute a reign of terror along enemy-occupied coasts and thus disperse widely the forces available to meet a deliberate assault; British air attacks had merely scratched German industrial resources, which were not only expanding but had recently been significantly reinforced by facilities, especially oil installations, in the Balkans; the British expedition to Greece had ended disastrously and amply pointed the moral that the time was not ripe for British forces alone to challenge the might of Germany under conditions favourable to the enemy.

Although the German invasion of Russia in June 1941 immediately occupied nearly three-quarters of enemy ground forces, there were still approximately 50 German divisions disposed to repulse any British attack against Norway or in north-western Europe. Marshal Stalin, who a year earlier had seen France engulfed without himself taking action, now pressed Britain to make a large-scale diversion there to draw German forces from the Eastern front. This was manifestly impracticable, for at best it would have engaged very few additional enemy forces. In the worst possible case, if the British diversionary force had been annihilated or badly crippled in France, and Russia herself overrun, the whole fruits of the training and re-equipment of British units in the 12 months since Dunkirk would have been cast prematurely away, leaving Britain weaker than ever. Immediate aid to Russia would have to be principally through the provision of equipment, a small token air contingent, and intensification of the air and amphibious raids already mounted in western Europe. Should Russia successfully resist the first German onslaught, as Britain had done, then more ambitious projects would become feasible. The British Chiefs of Staff, in accord with Churchill's own strong views, were already planning to launch a British offensive in Libya, advance to Tripoli, and then immediately invade Sicily to threaten the Axis on its southern flank and thus divert enemy strength from the Eastern front. This plan appeared to be the utmost which British forces alone could safely accomplish in 1942, and, even so, it was based on premises difficult to achieve. The Commanders-in-Chief in the Middle East themselves opposed the Sicily plan, which was shelved late in October 1941 when a new plan (GYMNAST), for cooperative entry into French North Africa, became the prime British objective—if and when General Auchinleck's coming offensive should drive the Italo-German forces from Tripolitania. The strategic centre of operations was thus still to be the Mediterranean, and Britain held firm to her methodical plan.

Russia continued to insist that Britain should plunge direct into the fourth (and final) stage of her strategic aim by invading north-western Europe, and, although the means were then lacking, Churchill instructed his Joint Planning Staff in September 1941 to expedite their study of the resources which would be needed for this climactic enterprise. By the end of the year an outline plan, based on the assumption that France might be invaded in mid-1943, was ready for approval, but already the second great shift in the course of the war had occurred with the Japanese attack on Pearl Harbour and Malaya. Britain and America became immediate and full Allies against Germany, Italy and Japan and strategy henceforth was decided on a world-wide basis except insofar as the unwillingness of Russia and Japan to declare war on each other prevented full cooperation between both Axis and Allied forces.

Although the new situation brought immediate dangers and, in the Pacific at least, entailed a reversion to first-stage strategy of warding off defeat, the entry of America into the war gave promise at last of enough men and equipment to make possible an armed re-entry to the continent



North-West Europe

of Europe. The direction of Allied strategy had in fact been long apparent because of a long-sighted decision of President Roosevelt in 1940 after the utter defeat of France. The first military consultations between Britain and America began as air and naval staff conversations in that year and continued during January and March 1941. The British viewpoint at these discussions was consistently that, on the assumption that both America and Japan became belligerents, the Allies should concentrate on defeating Germany and Italy first and then should turn their full weight against Japan. These considerations were re-emphasised in August 1941 at the Atlantic conference between Mr Churchill and President Roosevelt, although the new factor of diverting large quantities of equipment to support Russia had then to be taken into account. In December 1941, however, the way was clear for comprehensive and definite agreement both in principle and method. Talks began in Washington on 22nd December between the Prime Minister and the President, together with their Chiefs of Staff, at which prompt and mutually satisfactory plans were made. In January 1942 a Combined Chiefs of Staff Committee was set up to be responsible for the major strategy of the Allies and at the same time to control the broad program of war requirements and the allocation of all Allied resources. This united rather than collateral direction of the war promised an incisive quality and an efficiency of effort noticeably lacking in the earlier Anglo-French partnership and still unattained in action by the Axis powers despite their much vaunted solidarity. Both Britain and America were forced to give up a large measure of their freedom of independent action, and at times divergent views were inevitable, but, in the main, agreed solutions and energetic common action were always achieved on major issues after differing national or personal opinions had been fully aired.[1]

Of equal moment to the genesis of central strategical control arrangements was the decision at the December 1941 talks in Washington (the ARCADIA conference) to adopt officially the "Beat Hitler First" strategy. Despite the great anger and loss caused by the Japanese offensives in the Pacific, President Roosevelt and General Marshall, the United States Chief of Staff, were prepared to take the courageous and locally-unpopular stand that Germany was the greater menace, and that unless Germany was opposed as quickly and effectively as possible she might, by eliminating Russia, create a world situation in which defeat of Japan would be impracticable or merely a localised success. There was, however, in the memorandum submitted by General Marshall and Admiral Harold R. Stark, commanding the United States Naval Forces in Europe, a significant twist to previous British strategy. They stated: ". . . Our view remains that Germany is still the prime enemy and her defeat is the key to victory. Once Germany is defeated, the collapse of Italy and the defeat of Japan

[1] The Combined Chiefs of Staff system had the fault from an Australian standpoint that only the two major powers were represented. Australia felt that because all direction and allocation of materials now flowed from this more remote authority, she had in a sense been disenfranchised because she had no direct access, while at the same time her position vis-à-vis the British Chiefs of Staff, which she had been at great pains to establish, no longer gave her the strength she desired.

must follow."[2] Whereas the British had envisaged a gradual lopping of important limbs of the Axis so that when in an enfeebled state it could finally be mortally attacked, America wished to drive straight at the heart. America agreed to send air and ground forces as quickly as possible to the European theatre, stressing only that they should be actively engaged against the enemy.

The course of events in the Pacific early in 1942 as the Japanese drove south, drastically interfered with this simple offensive strategy, for considerable British and American forces had to be moved hastily to the Indian Ocean and South-West Pacific. Neither of the Allies was able to spare the men, materials and above all the ships to encompass even the GYMNAST plan to gain the whole North African shore, which had tentatively been accepted as a forerunner to invasion of Europe itself. The American Chiefs of Staff were still determined that only a holding campaign would be fought in the Pacific once the dangers had been halted there, and that the main blow would be launched against Germany. The increased commitments in all areas and the drastic rise in shipping casualties, both of which cut into the forces which at ARCADIA the Chiefs of Staff had thought would become quickly available, led them to narrow the European field to which they would commit forces, so that they advocated more and more strongly a direct attack against Germany herself. The British strategy of envelopment was criticised as too tardy and wasteful, and in March 1942 Roosevelt cabled that he was very eager to see a land front in Europe that year. Early in April General Marshall arrived in London to press for a direct assault against Germany as soon as possible.

The British Chiefs of Staff were at this time extremely conscious of the danger that German and Japanese offensives, if unchecked, might lead to a linking of the two main Axis powers in the Persian Gulf area, and they were more mindful of the need for strategic defence in the Middle East than anxious about what they feared might be a premature frontal attack on Germany. Faced with American offensive zeal, and conscious that a disavowal of the "Beat Hitler First" plan might entail American concentration in the Pacific, they willingly agreed to discuss the merits of the outline plans for an early return to the European continent.

The two general precepts most discussed were of the SLEDGEHAMMER and ROUND-UP type.[3] SLEDGEHAMMER was to be a land and air operation by which a limited bridgehead would be established within range of effective air cover from United Kingdom bases. The object was to pin down German forces in the west and to engage the German Air Force in such heavy battles of attrition that air, if not army, units would have to be withdrawn from Russia. In this regard the bridgehead might thus be a more forceful and constant irritant than the "Circus" and "Ramrod"

[2] R. E. Sherwood, *The White House Papers of Harry L. Hopkins* (1948), p. 449.

[3] There were in fact several plans which at various times were given these names but in each case the general outlines were similar.

operations by fighters and fighter-bombers then being waged by the Royal Air Force alone. ROUND-UP was envisaged as a permanent lodgement on the Continent with the maximum forces that could be assembled or supported. General Marshall himself presented a plan on the ROUND-UP model which involved an eventual force of up to 48 Allied divisions and 5,800 aircraft for the invasion of northern France in the spring of 1943. This scheme closely resembled the first OVERLORD plan, and is thus one of the most important landmarks in its history. In principle it was firmly endorsed as the prime Allied objective, although even at the time some doubts were expressed whether the powerful invading force required could be equipped, trained and transported by the date suggested. The expanding needs of other theatres, the increasing crisis in general shipping and a serious shortage of suitable assault landing-craft were all expected to create some difficulties. However, authority was given for preparations to assemble the forces and equipment required for a cross-Channel attack, and when General Eisenhower arrived in London in June 1942 he began discussions with Admiral Ramsay,[4] General Paget[5] and Air Chief Marshal Douglas, the British planning team. Although these conversations covered only the broader issues, the all-important point of entry was closely studied and the advantages of attacking along the central coast of Normandy rather than in the Pas de Calais were appraised. This was perhaps the most important development at this stage.

The Americans were also strongly in favour of a SLEDGEHAMMER operation to be mounted during the autumn of 1942, either purely for its own sake as a diversionary attack, or to maintain a small bridgehead through which the subsequent ROUND-UP could be staged. British commanders, who would have to provide most of the forces for this venture, opposed it with equal determination, because even minimum forces could not be gathered before late September and it would then be too late to force air battles of attrition in favourable weather. The alternative proposal to gain a winter foothold was also of doubtful worth since only nine divisions in all would be available of which five could be sustained in the bridgehead. This force would have the unenviable task of holding out for six or more months against carefully-prepared enemy air and ground counter-offensives, and if the divisions were lost or badly mauled any future preparations for invasion would be severely hampered. American enthusiasm and British opposition finally resulted in a compromise: a SLEDGEHAMMER operation would be mounted in 1942 only as a last resort if the Soviet Union appeared in danger of imminent collapse—or, as put more bluntly by the British planners who considered it basically unsound, "if forced on us for political reasons".

Political pressure was not long in forthcoming. While General Marshall was still in London President Roosevelt cabled Stalin early in April

[4] Adm Sir Bertram Ramsay, KCB, KBE, MVO. Vice Adm Dover, 1939-42; Flag Offr comdg Combined Ops Mediterranean 1943; Allied Naval C-in-C, Expeditionary Force 1943-44. B. 1883. Killed in aircraft accident, 2 Jan 1945.

[5] Gen Sir Bernard Paget, GCB, DSO, MC. (1914-18: Maj Oxford and Bucks Light Inf.) GOC 18 Div 1939-40; CGS Home Forces 1940; C-in-C SE Cd 1941, Home Forces 1941-43, Twenty-first Army Gp 1943, Middle East Force 1944-46. Regular soldier; b. 15 Sep 1887.

1942 suggesting that Soviet Foreign Office and military experts go to Washington to discuss common strategy. In May M. Molotov, the Soviet Foreign Minister, visited both London and Washington. He urged a second front in the west sufficiently large to engage 40 German divisions and their associated air forces. In London it was not easy to convince Molotov that a British suicide operation would give no real or lasting help either to Russia or the Western Allies; irritated by what he thought was evasion, Molotov went to Washington demanding "a straight answer". The American planners already favoured the scheme in principle and were unwilling to admit that they could not gather the material resources for it although they had not studied the precise difficulties involved. In this atmosphere Molotov was able to extract what he later publicised as a categorical assurance of a second front in Europe during 1942.

The British leaders, however, were turning ever more strongly against the SLEDGEHAMMER gamble and towards the Mediterranean strategy of late 1941. Mr Churchill himself visited Washington during June 1942 and pleaded that the original GYMNAST concept to secure French possessions in North Africa provided a far safer and far more profitable substitute for a second front in western Europe. No decision had been reached on TORCH (the revised GYMNAST plan), in fact American opinion was still advocating an early attack on France when Mr Churchill had to return to London because of the British defeats in the Western Desert. There, early in July, he virtually cancelled SLEDGEHAMMER and urged swift adoption of TORCH. Eisenhower, who feared that such a decision would imperil not only the short-term assaults but also ROUND-UP, the acknowledged central theme of Allied strategy, was appalled and indignantly cabled to Marshall. There was consternation also in Washington, and for a brief space Allied cooperation stood at the crossroads, for there were not wanting in America influential voices which called for a major effort in the Pacific and only a holding campaign in Europe. Only Roosevelt held firm to the original strategic decision during this very strong American reaction. He sent Mr Harry L. Hopkins, General Marshall and Admiral King (Chief of Staff, U.S. Navy) to London late in July to thrash the matter out, aiming still at SLEDGEHAMMER. British leaders' objections to SLEDGEHAMMER and their strong argument that TORCH, by re-opening the Mediterranean would improve the world-wide shipping position, could not be refuted in detail by the Americans, and their strong convictions were overcome only on 25th July when Roosevelt himself authorised the landings in north-western Africa as the main effort for 1942, although a short-term attack on France was to remain mounted as an emergency threat, and preparations for the ROUND-UP operation of 1943 were to continue.

This switch in application of force had some deep-lying effects on future events. In America where popular impatient demand for a true second front was gravely disappointed, the advocates of a Pacific strategy received increased support and in practice this meant some curtailment of supplies and of naval assistance to subsequent operations in Europe.

In Britain the absence of direct assault gave great impetus to a large-scale bomber offensive against Germany. It mattered little that the disastrous reconnaissance in force to Dieppe in August 1942 amply emphasised the very sound objections which Britain had raised to the SLEDGEHAMMER proposal. The Americans, who had previously been anxious to make a frontal assault on France regardless of losses, now raised many objections to the British proposal that the main impact of TORCH should be as near the central Mediterranean as possible so that Tunisia could be seized by swift resolute action. Instead the Americans advocated an attack on the Atlantic flank and an advance eastward only when Morocco was firmly held.

The next step in the development of Allied strategy was taken at the Casablanca conference in January 1943, held at a time when the invasion of north-western Africa had begun auspiciously but had been halted by resolute enemy counter-measures because of the initial Allied failure to secure Tunis. The Eighth British Army had defeated the enemy at El Alamein and now controlled all Libya; the Russians had begun an offensive from the Volga. Time had shown that a suicidal SLEDGEHAMMER would not in any event have been warranted and the Russians no longer were in danger of total defeat. Time, however, now argued against the original concept of ROUND-UP. A large part of the American forces for TORCH had come from those sent to Britain in preparation for ROUND-UP, and between this diversion, a cooling of American enthusiasm, and the increasingly difficult shipping situation in the Atlantic, it was not possible to build up sufficient forces for a full-scale invasion of France in the spring of 1943. Unfortunately, because of initial hesitancy, it was now clear that the Tunisian campaign would not be finished before May, so that forces and naval transports then available could not be transferred and re-trained for ROUND-UP before September at the earliest, after the favourable campaigning period in France had almost passed. The decision of the Casablanca conference, therefore, was to defer the projected assault on Europe until early 1944 by which time really effective forces were expected to be ready for action. It was also decided to appoint a British officer as "Chief of Staff to the Supreme Allied Commander (designate)" to coordinate all planning for the invasion. Lieut-General Morgan[6] was chosen and began his task in April 1943 taking the initials of his title COSSAC as the name of his planning staff.

Strategic action for 1943 was decided after some long discussion. Two of the decisions—an all-out offensive against U-boats and a co-ordinated Anglo-American air assault against German industry—were tied directly to the invasion plan. Both were intended to bridge the gap between Allied and enemy resources; one by clearing the convoy routes so that men and materials might flood into Britain and the naval and merchant shipping required for amphibious assault be made available at

[6] Lt-Gen Sir Frederick Morgan, KCB. Comd 1st Support Gp 1 Armd Div France 1939-40; BGS II Corps 1940-41; GOC Devon and Cornwall Div 1941, 55 Div 1941-42, I Corps 1942-43; COSSAC 1943-44; Dep CS Allied Expeditionary Force 1944-45. Regular soldier; b. 5 Feb 1894.

the proper time, the other by depressing the general German economy and above all the key armament industries. Action by ground forces could not be so quickly resolved and the British pressed for the conquest of Sicily and heavy attacks on Italy once Tunisia was won, while the Americans, who feared that China would that year bear the brunt of Japanese attack, strongly urged campaigns in South-East Asia to recapture Burma, and in the South-West Pacific to prevent any enemy consolidation of their gains in that region. Finally the Sicily plan was authorised but the Americans had some mental reservations as to the exact allocation of resources between the two main theatres.

At the Washington conference in May 1943 (TRIDENT) which sat at the very time when the last enemy resistance in Tunisia was being broken, the codeword OVERLORD was chosen for the assault on northern France. There was a considerable amount of basic planning and preparation already complete and the recent favourable turn in the Battle of the Atlantic gave hope that the required build-up would be achieved in Britain by the spring of 1944. Here again there was some divergence of opinion, the British Chiefs of Staff advocating an Italian campaign after the conquest of Sicily, the Americans insisting that there must be no further drain on forces required directly for OVERLORD, and remaining sceptical that the preoccupation and exhaustion of enemy troops in an Italian campaign was a true contribution to the main scheme. Thus when, towards the end of the Sicilian campaign, the fall from power of Mussolini gave promise of great political as well as military dividends from an immediate Allied entry into Italy, it had to be effected on an *ad hoc* basis.

The COSSAC outline plan for the 1944 master stroke had meanwhile been completed and was presented to the Quebec conference (QUADRANT) in August 1943. Basically it proposed an assault on the Normandy coast west of Caen with an initial strength of three divisions, backed by two more in an immediate follow-up wave, and built up within a fortnight to a strength of 18 divisions, after which further forces could be fed in as required through Cherbourg which was one of the principal early objectives. Two brigades of airborne troops were to assist in the first assault phase. This general plan, with its very small spearhead, was unavoidable because a limited number of assault-craft was at that time allocated to OVERLORD, so that, although men and arms were not lacking, they could only be fed in at a comparatively slow rate which might endanger the whole enterprise if the Germans could quickly concentrate their forces against the beach-heads. This weakness was seen at the time, and Churchill proposed that the initial assault should be increased by at least one more division; if shipping were available for this it would naturally also accelerate the subsequent build-up of Allied forces. The Americans, who in such a case would have to provide the additional assault-craft, demurred, and in contrast to their previous insistence that all force must be applied in one single drive, proposed that landing-craft temporarily in the Mediterranean but destined for the Indian Ocean should

be used for a simultaneous assault in the Toulon-Marseilles area of southern France. This plan (ANVIL) was accepted as the best diversion then practicable and the COSSAC plan was approved by the Combined Chiefs of Staff, who reaffirmed 1st May 1944 as the date for its execution.[7]

At the Quebec conference Air Chief Marshal Leigh-Mallory, former head of Fighter Command and the chief air planner with COSSAC, was designated Air Commander-in-Chief of the Allied Expeditionary Air Force (A.E.A.F.) which was to protect and help clear the way for the liberating army. Headquarters A.E.A.F. was set up on 25th November 1943 and became established soon afterwards at Stanmore in Middlesex. In retrospect it may have avoided much argument and misgiving had a supreme commander for OVERLORD been appointed at the same time. Mr Churchill, conscious that no choice other than an American was acceptable, himself proposed General Marshall, but President Roosevelt was disinclined to make an immediate announcement, especially as the presence of Marshall in Washington for as long as possible was thought to be imperative.

A supreme commander faced with personal responsibility for carrying out the COSSAC plan would certainly (as Eisenhower did later) have felt the basic weakness of the initial assault far more sharply than did a committee, and Marshall would have been in an ideal position to obtain early the means of repairing the major defect. As it was, although OVERLORD was fully accepted in principle and detailed planning continued, the American Chiefs of Staff experienced some uneasiness concerning the British attitude throughout the period between the Quebec and Cairo conferences. At the Cairo conference (SEXTANT) in November 1943 Mr Churchill offered reassurances that, while advocating supplementary campaigns in southern Europe, he was by no means trying to avoid OVERLORD. The British made it clear, however, that they would engage in northern France only if military resources sufficient to make the venture a feasible operation were forthcoming; and in this regard they criticised the presence at Cairo of Generalissimo Chiang Kai-shek who had obviously been promised or was expecting to receive military aid which America had declared herself unable to provide in order to bolster the main weakness of the COSSAC plan. These issues were still being debated when the principal members of the conference travelled to Tehran for special talks with Marshal Stalin and his advisers. Russia was uncompromising in her attitude; she wished no intervention (which even at this stage she was almost inclined to hint at as interference) in south-eastern Europe, but instead demanded that OVERLORD and ANVIL should proceed in strength as soon as possible. Russia undertook to stage a simultaneous large-scale offensive on the Eastern front. Back in Cairo the Anglo-American planners again reviewed their points of agreement and divergence and on 6th December reached an irrevocable

[7] This date was first issued in a supplementary directive from the CCS to COSSAC on 25 May 1943.

mutually-agreed decision in principle that OVERLORD and ANVIL were to have absolute priority over all other operations anywhere in the world during 1944 and that both should be mounted during May of that year. On the same day General Eisenhower was chosen as the Supreme Allied Commander, a decision publicly announced on Christmas Eve 1943.

Eisenhower was to take with him to Britain key members of his winning Mediterranean team: Air Chief Marshal Tedder as deputy commander, General Montgomery to command the Twenty-first Army Group, and General Bedell Smith as Chief of Staff. Officially they saw the COSSAC plan only late in December, barely four months before they were required to carry it out, but Eisenhower was already aware of its main outline and even before he was called upon to take responsibility he had formed certain mental reservations which paralleled the previously expressed British doubts. He himself was to be in America until mid-January 1944, but he asked the others to prepare criticism of the plan during his absence because he "felt that the initial assaulting forces were being planned in insufficient strength and committed on too narrow a front". He reached London again on 15th January and, although his directive from the Combined Chiefs of Staff was not issued until 14th February (Supreme Headquarters Allied Expeditionary Force was not officially recognised until the following day), very searching scrutiny was given to the basic plan during this transitional period. At the first meeting with his Commanders-in-Chief (General Montgomery, Admiral Ramsay and Air Chief Marshal Leigh-Mallory) on 21st January, agreement was readily reached on the principal changes which were sought for the plan of assault.

Eisenhower and Montgomery, after their experience of Sicily, were adamant that, against the vastly superior coastal defences and defenders of France, a minimum of five divisions instead of three should attack in the initial wave. Again a considerable widening of the prime assault area seemed necessary to give tactical freedom both in exploiting chances of quick success and in meeting especially threatening enemy counter-attacks. Thus while COSSAC had restricted entry to the beaches lying between Courseulles in the east and Grandcamp in the west, Eisenhower now proposed landings on the Ouistreham beaches on the east flank and around Varreville in the west, in the one instance aiming at a quick seizure of Caen and in the other at a firm foothold on the Cotentin peninsula with the prospect that the vital port of Cherbourg would first be cut off and then captured. The size and employment of airborne forces was also reviewed, two divisions being suggested for the Cotentin venture and one to gain important bridges over the Orne and Dives Rivers north-east of Caen. These major modifications were put before the Combined Chiefs of Staff on 23rd January together with the assumption that they would entail a delay in preparations of approximately one month. The Combined Chiefs of Staff agreed on 1st February that OVERLORD should be mounted not later than 31st May, but when the varying ground, air and naval considerations for the exact timing of the landings had been fully gauged,

it was finally decided on 17th May that tide and light conditions acceptable to all three Services would occur only between 5th and 7th June. If no opportunity offered to attack between those dates a suitable tide would not be available for a fortnight and suitable tide and light conditions not until early in July. The target date, subject only to last-minute alteration, was therefore set at 5th June 1944.

OVERLORD was the keystone of planning in the whole strategic conception of the Anglo-American "Beat Hitler First" policy. As a joint plan it was first conceived at a time when it appeared likely to be vital to assist the military recovery of the U.S.S.R. if not to prevent her total annihilation. More indirect support to the U.S.S.R. and peripheral campaigns which bled Germany had in fact during 1942 and 1943 aided such a resurgence of Russian strength that before OVERLORD could be staged German armies had retreated from Russian territory. In the event, therefore, the OVERLORD invasion was to be a tremendous blow from the north-west coordinated with the existing Allied advances from the east and south to wage a final campaign for the utter defeat of Germany.

Both in purpose and scope OVERLORD was an unalterable commitment binding the United Kingdom and the U.S.A. In creating the land, sea and air forces necessary to carry out the plan the far-reaching pattern of allocation of manpower, materials and industrial potential had been already decided for a long time. Successive joint and tripartite (including Russia) conferences had unanimously confirmed the aims of OVERLORD long after the simple "Second Front" aim had lost its original urgent validity. It would have availed little to recast the plan drastically because of the changed circumstances of early 1944, even though American and British proponents of (differing) philosophies of achieving victory mainly by strategic bombing were strongly opposed to any interference with the existing combined bombing offensive against German industry which would have to be halted in favour of OVERLORD air requirements.

Before, during and after the assault phases of OVERLORD, the decision to place all Anglo-American air forces under the direction of General Eisenhower as Supreme Commander provoked active debate and some tacit evasion. Since 1941 the R.A.F. had been developed primarily for the task of strategic bombardment. Short-range fighter, tactical attack and Coastal Command units were really ancillary forces designed to help create a situation in which Bomber Command could have the greatest freedom of action.[8] With the restricted proportion of national effort which could be allocated to building up the bomber force because of the agreed decision to raise and equip ground forces for OVERLORD, expansion appeared painfully slow to men like Air Chief Marshal Harris who believed that bombing, if on a sufficiently large and sustained scale, could of itself sow the seeds of final victory. Despite this restriction during 1943 the tonnage of bombs dropped on German targets was greater by about 70 per cent than the combined total for the preceding three years and

[8] The main lines of RAF planning in these years are discussed in the preceding volume of this series.

a quarter. The R.A.F. had at last proven types of heavy-load-carrying bombers, greater availability of well-trained aircrews, improved maintenance facilities, ground organisation and navigation aids which permitted night strikes against large targets of ever-increasing scale and frequency. The crews of Bomber Command squadrons, trained as they were in specific techniques, their minds schooled to a philosophy of area bombardment and convinced of their own experience that they were now in a position to strike ever harder blows, were in tacit agreement with their leaders who opposed any change in the pattern of operations.

The U.S.A.A.F. was also wedded to a policy of strategic bombing—the attrition of specific "point" industrial targets by precision daylight bombing. This bombing force was confident early in 1944 that it could operate freely over the greater part of Germany because long-range fighters were now available in sufficient numbers to enable the bombers to crash through enemy airborne defences. The American Eighth Air Force was as eager as Bomber Command to prove its own theories in action so that the OVERLORD campaign appeared as an unwelcome, if necessary, diversion.

The desire of the Anglo-American strategic air forces for freedom to conduct autonomous policies could not be granted in the light of the vast needs of OVERLORD. A satisfactory compromise was reached that Tedder, as Eisenhower's deputy, and not Leigh-Mallory as air commander-in-chief for OVERLORD, would coordinate the operations of the tactical and strategic air commands during the phase of total commitment of all forces to OVERLORD.

CHAPTER 2

AIR PREPARATIONS FOR THE ASSAULT ON NORTH-WEST EUROPE

IN its final form OVERLORD provided for an amphibious assault across defended beaches between Ouistreham and Varreville in Normandy with the initial objective of capturing Caen, Bayeux, Isigny and Carentan together with their airfields, the major port of Cherbourg and other ports in Brittany. The 5 seaborne and 3 airborne divisions making this assault were then to be increased speedily to 23 infantry, 10 armoured and 4 airborne divisions within the beach-head, when, after a show of force on the eastern flank near Caen to preoccupy the main German defences, American troops were to break out to the west, overrun Brittany and make a broad sweep eastward so that the whole front would pivot on Caen and the Allies could thus push forward to the Seine and capture Paris within three months. This plan assumed the ability of Allied navies to put troops ashore over heavily-defended open beaches, made more formidable for shallow-draught vessels by natural and artificial obstructions, and to maintain by sea a greater supply of arms, ammunition, food and troops than the enemy, using his internal lines of communication, could concentrate against the invaders.

An even greater responsibility lay with the Allied air forces not only to ensure positive success to both army and naval measures for the establishment and supply of the bridgehead, but also to frustrate or depress all German attempts either to supply or employ in action their own ground, air, or naval forces. Previous campaigns had made axiomatic the army contention that the air battle must be won before the ground battle, while the disappointing amphibious assault at Anzio early in 1944 had given rise to calls for air support on an ever-mounting scale in support of the OVERLORD project.

There were available in England more than 10,000 aircraft for participation in OVERLORD, yet even this force was insufficient to meet in full all the varied and often conflicting demands for air action. The R.A.A.F. or individual members made only a minute contribution of effort to the administrative and planning achievements which ensured the build-up, assembly, accommodation and provisioning of such a vast force, or even to the strategical and tactical concepts according to which it was employed.[1] A very brief summary of these plans is essential, however, to explain the part undertaken in operations by R.A.A.F. squadrons and aircrew scattered throughout the general line of battle of the R.A.F. The primary responsibility for air operations in support of the invasion lay

[1] One Australian, Air Cmdre E. J. Kingston-McCloughry, was the chairman of the AEAF Bombing Committee which prepared the main plans for air tasks in both the preparatory and assault phases of OVERLORD. McCloughry, like his brother AVM W. A. McCloughry (killed in an air accident in the Western Desert in Jan 1943), had joined the RAF immediately after distinguished service with the Australian Flying Corps in the 1914-18 war.

with Leigh-Mallory, who, as mentioned, coordinated his requirements for forces not under his direct control through the Deputy Supreme Commander, Air Chief Marshal Tedder. Thus in formulating early in April 1944 the "Overall Air Plan" he could dispose the Allied Expeditionary Air Force plus an allotted effort from R.A.F. Bomber Command, American Eighth Air Force, R.A.F. Coastal Command and Air Defence of Great Britain. The principal air tasks were then defined as:

(1) To attain and maintain an air situation whereby the *Luftwaffe* would be rendered incapable of effective interference;
(2) to provide continuous reconnaissance of enemy dispositions and movements;
(3) to disrupt enemy channels of communications and supply;
(4) to give active support in the landing and subsequent advance inland;
(5) to deliver offensive strikes against enemy naval forces;
(6) to provide air lift for airborne forces.

To achieve these objects the plan further set out specific preparatory and maximum close-support duties.[2] The outline of prerequisites detailed:

(*a*) Attacks against the *Luftwaffe* both in its production centres and on its bases within operational distance of the assault area;
(*b*) dislocation of supply by attacks on rail centres, locomotives and on road and railway bridges;
(*c*) neutralisation of coastal defences;
(*d*) disruption of enemy W-T and radar facilities;
(*e*) attacks on enemy flying-bomb and rocket sites;
(*f*) attacks on military depots, dumps and assembly and camp areas;
(*g*) harassing of coastwise shipping and sea-mining;
(*h*) very complete and continuous photographic and tactical reconnaissance of enemy coast and rear areas;
(*i*) incidental tasks including the supply of arms, munitions, radio equipment and leaders for para-military organisations in France and other German-controlled countries.

Other plans were prepared within the scope of, or complementary to, the Overall Air Plan. Thus the "Joint Fire Plan" gave the part to be played by each Service in the destruction or neutralisation of enemy coast defences. This plan raised spirited opposition from R.A.F. Bomber Command which contended that the use of heavy bombers by night against coastal batteries would be "extremely unreliable and almost wholly futile". Nevertheless Bomber Command was allotted a considerable share in the program, being directed chiefly against batteries still under construction. Again a "Joint Air Plan and Executive Order" (JAPEO) issued by the Combined Control Centre[3] gave detailed instructions for continuous defence and offence to each of the 171 fighter and fighter-bomber squadrons available for OVERLORD. It also clarified the method of operational control of fighters by the static organisation in England, by special fighter direction tenders sailing with the assault fleet, and by ground control stations to be set up in the beach-head.

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[2] The air tasks allotted for the invasion itself are detailed later.

[3] The Combined Control Centre at Uxbridge was staffed jointly by No. 11 Group RAF and IX US Fighter Command.

Plans for airborne operations were similarly prepared by No. 38 Group R.A.F. and here Air Commodore Bladin[4] was intimately associated with the concept and details of these arrangements. To Coastal Command the directive "Cork" gave specific orders for patrols, both independently and in cooperation with naval forces, to seal the western end of the English Channel against any infiltration of U-boats to the assault area. Furthermore Coastal Command had to prevent similar penetration by minor German surface warships from both westerly and easterly directions and guard against any mass attack by any means on ocean convoys. The unusual threat of heavy bombardment by German automatic missiles, the jet-propelled pilotless aircraft and the stratosphere rocket, gave rise to the CROSSBOW plan to frustrate enemy preparations by meticulous reconnaissance and damaging of the launching sites for these weapons. POINTBLANK, the strategic bombing concept adopted at Casablanca, continued with whatever forces could be spared, but on 14th April 1944 control of the Strategic Air Forces was vested in the Supreme Commander and the preparatory operations vital to the success of the invasion were given absolute precedence. An "A.E.A.F. Signal Plan" and a "Joint Cover Plan" made exhaustive arrangements not only for efficient communications between all sections of this vast force, which was expected to attain a peak of 12,000 sorties daily during the assault, but also provided for simulated threats of invasion in areas remote from the actual beaches chosen, so that the Germans could concentrate their forces with certainty neither before nor, for a considerable period, after the initial landings, in case these were in fact only a feint for one of the other apparent threats.

Finally, in addition to all these operational plans there was the vast administrative task of making southern England the launching place for the invasion. Units not directly involved were moved to make room for participating squadrons, many of which were necessarily reorganised on a fully mobile basis in expectation of a further move to France. In the six months before June 1944 no fewer than 110 R.A.F. squadrons were re-equipped with the most up-to-date available types of aircraft. Comprehensive advance arrangements had to be made with inter-Service organisations such as "Build Up Control" (BUCO) and "Movement Control" (MOVCO) to ensure that the correct numbers of men and proportion of materials arrived in the beach-head in the sequence required for uninterrupted air development and operations, so that an estimated force of 20 squadrons could be based in France within the first three weeks of the land campaign. It was a far cry from the *ad hoc* planning and loading muddle which had characterised the first Anglo-French expedition to Norway in April 1940, when many vitally required stores appeared by perverse chance to be buried below inessentials or could not be identified quickly. Experience during the four years of desperate struggles in

[4] AVM F. M. Bladin, CB, CBE. Dir Operations and Intelligence 1940-41; AOC Southern Area 1941-42, North-Western Area 1942-43; SASO 38 Gp RAF 1943-44; Dep Chief of Air Staff RAAF 1945; Chief of Staff BCOF, Japan, 1946-47. Regular air force offr; of Kew, Vic; b. Korumburra, Vic, 26 Aug 1898.

all theatres of war had taught the lesson that administrative and supply efficiency was equal in importance to personnel or equipment problems.

At the beginning of April 1944, when the preliminary air offensive began, R.A.F. Home Commands had available for operations 292 squadrons of all types. By 6th June this force had risen to 306 squadrons and again by 1st January 1945 to 324 squadrons and a half. Within this large force, itself only part of the total air threat to Germany, there were on the same dates 10, 10 and 12 R.A.A.F. squadrons respectively. These figures, while they demonstrate the relatively small nature of Australian contribution to the whole task, do not bear any direct or precise arithmetical comparison. Apart from the training, administrative, supply and ancillary services supplied almost entirely by the R.A.F., none of the R.A.A.F. squadrons, except No. 10, was even in a day-to-day capacity entirely staffed by Australians. The decision made in March 1943 not to send further ground staff to England, inevitably meant that through repatriation, casualties and sickness, promotion and remuster to aircrew, the percentage of R.A.A.F. technical and other ground crews on each squadron waned, especially as the squadrons themselves had to be increased in complement for the special period of high operational activity envisaged for the final defeat of Germany. Even in respect to aircrews only No. 10 and the single-engined squadrons could be maintained as truly Australian squadrons.[5] The accompanying table shows the aircrew position on three dates, the last representing the highest level of R.A.A.F. aircrew representation on operations.

Squadron	1st April 1944			1st June 1944			1st January 1945		
	RAAF	Others	%	RAAF	Others	%	RAAF	Others	%
10 (C)	177	—	100	190	14	93·1	210	—	100
451 (F)	—	—	—	—	—	—	23	—	100
453 (F)	23	—	100	23	—	100	26	—	100
455 (C)	31	39	44·3	43	28	60·5	60	9	87
456 (NF)	34	14	70·8	35	16	68·6	42	7	85·7
460 (B)	129	98	56·8	176	189	48·2	245	162	60·2
461 (C)	131	42	75·7	153	57	72·8	149	55	73
462 (B)	—	—	—	—	—	—	135	150	47·3
463 (B)	96	70	57·8	107	84	56	180	109	62·3
464 (Second TAF)	14	39	26·4	23	44	34·3	34	27	55·7
466 (B)	131	74	63·9	153	76	66·8	147	133	52·5
467 (B)	85	88	49·1	83	78	51·5	202	92	68·7
	851	464	64·7	986	586	62·7	1,453	744	66·1

This shows, however, only one facet of the whole situation for, at the same relevant times, in addition to those serving in Training Command,

[5] For discussion of the difficulties of securing fully Australian crews see Chapter 20 in Volume III of this series.

training units within operational commands, administrative staff and other "rest" employment, R.A.A.F. men were disposed as shown in the next table in R.A.F. squadrons actively engaged on operations.

	1st April 1944		6th June 1944		1st January 1945	
	Pilots	Other Aircrew	Pilots	Other Aircrew	Pilots	Other Aircrew
Bomber Command	183	467	210	637	362	1,131
Coastal Command	80	422	90	492	78	529
Second T.A.F.	84	23	95	30	148	96
Fighter Command	94	16	107	16	91	21
No. 38 Group	34	83	46	93	54	111
	475	1,011	548	1,268	733	1,888

No satisfactory estimate is possible of the number of squadrons these scattered Australians might have manned had they been gathered together, for as will be quickly seen there was a preponderance of pilots and an acute shortage of other types of aircrew. In fact on 1st January 1945 the 2,621 R.A.A.F. men indicated above were serving on 214 R.A.F. squadrons and in no less than 111 instances, fewer than 10 Australians were together on a unit. Thus R.A.A.F. men were present on all except 88 squadrons in the entire R.A.F. line of battle, and these absences refer chiefly to Polish, Czech, French and Fleet Air Arm units from which they were naturally excluded, and to R.C.A.F. squadrons which by this time had attained a very distinct national flavour. One result of this dispersion is inevitably an abundance of incidents concerning R.A.A.F. aircrew spread over every aspect of air warfare, without a convenient yardstick by which such incidents can be assessed or grouped into a truly representative Australian effort. The same situation obtains in the wider field, for the total strength of the R.A.A.F. in England including men on operational squadrons averaged 13,000 men throughout the last year of the war, but they were in so many occupations and locations that it is impossible to distinguish their effort from that of the R.A.F. The reader is therefore warned against the unconscious bias of this record which deals with a period when air operations reached a new intensity and range, and in which the exploits of R.A.A.F. squadrons and individuals are employed to explain events. The incidents used to illustrate and analyse each task of air power must necessarily be selected on an arbitrary basis and are merely representative of the greater whole. An entirely different selection of incidents would show as great a record of efficient airmanship and individual stories of courage, endurance and

selfless duty of an equal order. Again the necessity to condense and to show graphically many of the repetitive large-scale actions must not hide the skill, cooperation and daring of the crews engaged.

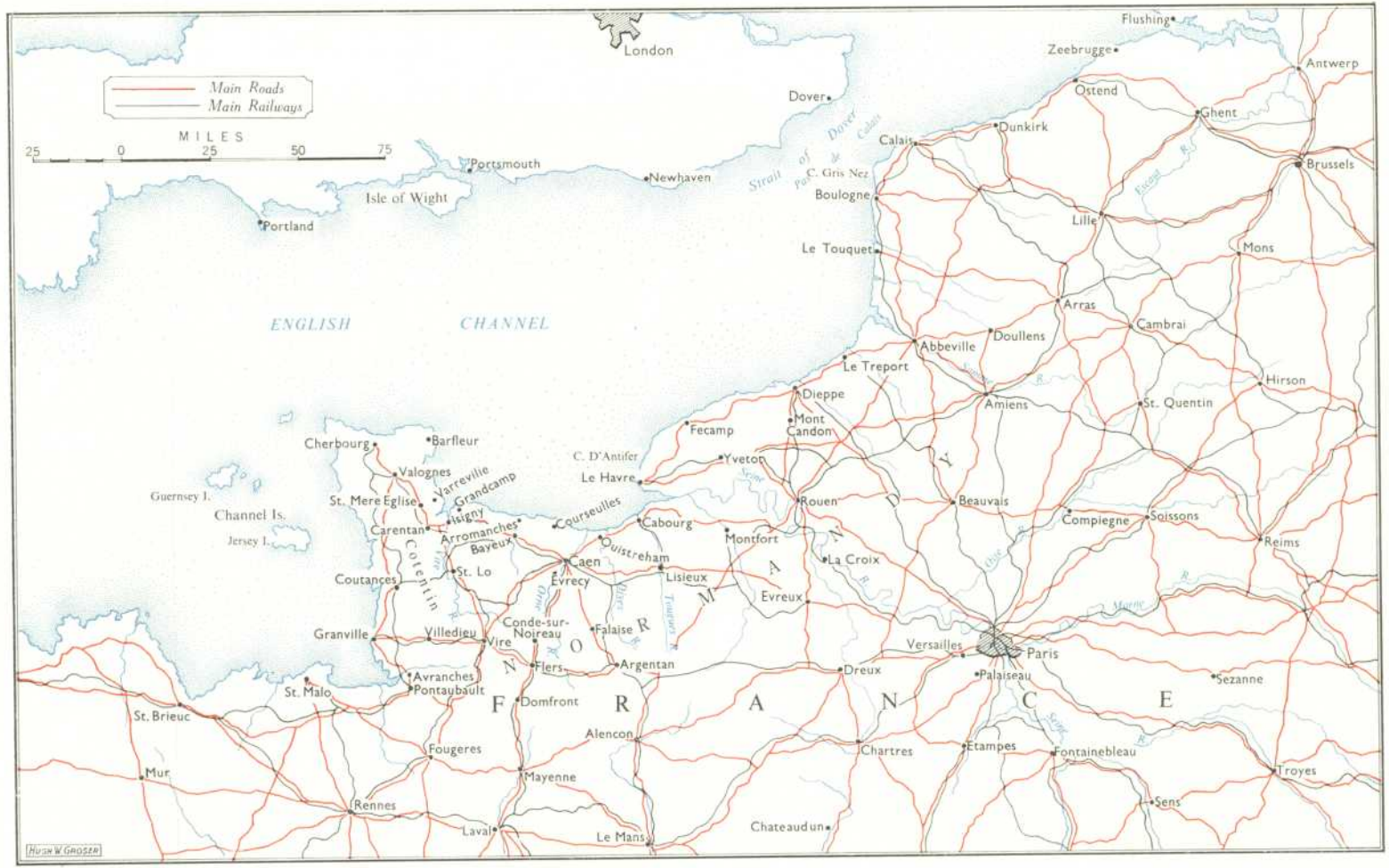
The obvious first task of the Overall Air Plan was to secure such a measure of air superiority over the enemy that air power could be employed in any required direction regardless of counter-measures. This was not assured simply on the numerical estimation that against the 10,000 Allied aircraft the Germans could muster in France[6] early in 1944 fewer than 150 single-engined fighters. The astonishing production of German fighters under the direction of Albert Speer, the German Minister for War Production, the availability of bases in France and the obvious possibility of quick transfer of the large defensive fighter force then concentrated within Germany made the theoretical potential of the *Luftwaffe* in combating the invasion a serious threat. During April and May therefore a sufficiently heavy level of attack was aimed not only at enemy aircraft industries but also at operational bases to nullify this threat. The first part of this task consisted of a continuation of the heavy-bomber night and day attacks, but the principal French airframe and engine factories were added to the list of targets previously bombed. This program in addition to preventing full recovery of damaged aircraft factories, also forced the enemy to retain in Germany his active squadrons which otherwise might have been deployed in France. In prosecuting the additional offensive against operational bases in France the basic strategy was to force back enemy dispositions until the *Luftwaffe* was working at the same tactical disadvantage as squadrons based in England some 150 miles distant from the proposed invasion beaches. Should this be achieved, then numerical advantage both in offence and defence would give real air superiority.

Friedrichshafen, on the shores of Lake Constance, a very important centre of aircraft, tank-engine, gearbox and radar production, was attacked on 27th-28th April by 322 aircraft drawn mainly from No. 1 Group. In addition to 20 Lancasters of No. 460 Squadron, 17 other Australians captained aircraft engaged on this raid which took place in good visibility from 20,000 feet. The initial marking was accurate and a "Master of Ceremonies" closely controlled the whole operation with the result that within 15 minutes the whole area was afire and rent by heavy explosions. Three Dornier factories, the Maybach tank-engine plant, the Zahnradfabrik works and the Zeppelin hangar were heavily damaged, together with

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[6] The actual disposition of the German Air Force in Western Europe on 5 June 1944 was:

	Long range bombers	Ground attack	S.E. fighters	T.E. fighters	L.R. recon-nais-sance	Tactical recon-nais-sance	Coastal	Total
South and south-west France (south of 46°N)	180	—	15	20	15	—	5	235
France (west of Seine to 46°N)	90	75	50	35	35	25	—	310
France (east of Seine) and Belgium	30	—	105	90	10	—	—	235
Holland	25	—	—	—	10	—	—	35
	325	75	170	145	70	25	5	815



Area of OVERLORD and ancillary operations

more than half of the residential and business areas. The experiences of crews on this eight hours and a half flight varied widely, many captains reporting a quiet trip while later arrivals had to face fighters over the target. Three Lancasters of No. 460 were among the 21 shot down, and Pilot Officer Cullen[7] of the same squadron, off course on his outward journey was heavily engaged by the Strasbourg gun defences but continued on to Friedrichshafen and brought his crippled aircraft safely home. Not so fortunate was Pilot Officer Peter[8] of No. 35 whose pathfinder Halifax was attacked and damaged by a night fighter both before and after reaching the target, the second attack setting the aircraft on fire abaft the mid-upper turret. Both the gunners suffered skin burns and their parachutes were destroyed as Peter, blinded by smoke, struggled to pull the Halifax out of a madly spinning dive, but two crew members successfully baled out before the aircraft at last came under control at 3,000 feet. The wireless operator now reported that his parachute had fallen through the escape hatch, so with three helpless men aboard the sluggish and hardly controllable Halifax, Peter turned back and made a successful descent on the surface of Lake Constance. The injured gunners were placed in a dinghy and the whole party paddled southwards towards the Swiss shore, watching at the same time the mounting fires and explosions in Friedrichshafen during the later stages of the raid.

A raid against Schweinfurt the previous night had not achieved the same success, although all five of the main ball-bearing factories were hit in varying intensity. Schweinfurt was well defended and had already occasioned two epic daylight battles between the *Luftwaffe* and the U.S.A.A.F.; and on this night intense fighter activity, incorrectly forecast winds, and a dense artificial smoke-screen led to difficulty in marking and lack of coordination in bombing. This raid was mounted by No. 5 Group and was only in moderate strength, 226 Lancasters dropping 674 tons of incendiaries and high-explosive bombs. In contrast to the majority of aircraft in the whole force which lost 21 Lancasters, the 27 crews dispatched by Nos. 463 and 467 met no difficulties. The report of Wing Commander R. Kingsford-Smith, cautiously optimistic, is typical of the R.A.A.F. assessment of the raid at that time: "the bombing appeared to be quite accurate. I cannot assess the markers as no ground detail could be seen. Flak and searchlights over the target offered little opposition. . . ."

Australians played a relatively large part in two attacks against aircraft factories, repair facilities, an airfield and an explosives factory near Toulouse during this preparatory phase. On 5th-6th April 147 Lancasters and one Mosquito of No. 5 Group were led and controlled by Wing Commander J. R. Balmer of No. 467, while from the same squadron Squadron Leader A. W. Doubleday and Pilot Officer Mackay[9] were

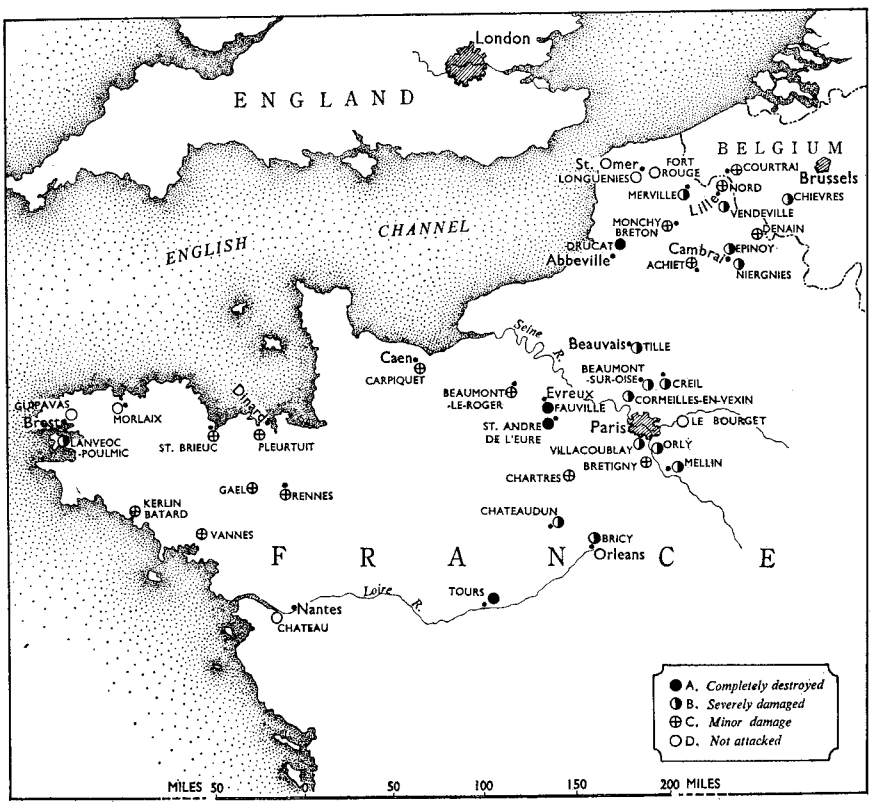
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[7] F-O D. J. Cullen, DFC, 421179; 460 Sqn. Golf professional; of Bondi, NSW; b. Bunbury, WA, 15 Nov 1914.

[8] F-Lt R. G. Peter, DFC, 415272. 51 and 35 Sqns RAF. Schoolteacher; of Victoria Park, WA; b. Geraldton, WA, 13 Jun 1917.

[9] F-Lt W. Mackay, DFC, 420771. 467 Sqn, 232 and 243 Sqns RAF. Machinist; of Adamstown, NSW; b. Merewether, NSW, 4 Aug 1916.

detailed as specialist wind-finders, as with so small a force on a long journey it was essential to advise other navigators of any meteorological change so that all aircraft could arrive simultaneously and deliver a concentrated attack. The two R.A.A.F. squadrons at Waddington sent 21 Lancasters and there were nearly a dozen other Australian pilots in this force, which set out in poor weather but met no opposition over France. Just after midnight Balmer dropped flares from 8,000 feet, and the second one burst immediately over the chosen aiming point, a large



Attacks on enemy airfields

hangar on Montaudran aerodrome. The main attack was made from between 9,000 and 11,000 feet despite moderate gun defences, and this resulted in very accurate bombing, as 16 of the R.A.A.F. crews brought back photographs clearly showing the aiming point in relation to their bombs, many of which had been fitted with delayed-action fuses to prevent speedy repairs to the airfield itself. The enthusiastic claims of the men engaged on this raid were borne out by daylight photographs which showed that main buildings in the three aircraft factories were heavily

damaged and three hangars and some aircraft had also been destroyed. All the Australians returned safely, although one experienced engine trouble and another landed at Waddington only to drop on the airfield a delayed-action bomb, which had failed to release over Toulouse. Fortunately a hurried calculation permitted this bomb to be defused before it exploded, but it provided yet another unusual hazard to the experience of bomber crews. The second attack against Toulouse repair and assembly factories was made on 1st-2nd May by an even smaller force of 72 Lancasters of which 20 came from Waddington. Satisfactory bombing results were obtained although artificial smoke defences were in operation, and the whole force returned without loss.

The campaign against German airfields was initially made to destroy maintenance, repair and servicing facilities rather than to block the aerodromes by craters which could be speedily filled in. Every airfield was constantly photographed after each attack to determine whether damage to major installations was sufficient to force an enemy withdrawal. It was then either removed from the target list or subjected to further attack. Both heavy and medium bombers shared in these attacks but the overwhelming majority of them were made by U.S.A.A.F. aircraft between 11th May and 5th June 1944:

	Attacks	Sorties	Tons of Bombs
Ninth U.S.A.A.F.	56	2,550	3,197
Second T.A.F.	12	312	487
R.A.F. Bomber Command	6	119	395
Eighth U.S.A.A.F.	17	934	2,638
	91	3,915	6,717

The only attack of this type made by R.A.A.F. squadrons was on 8th-9th May when Nos. 463 and 467 provided more than half a force of 40 Lancasters which attacked Lanveoc-Poulmic aerodrome near Brest. The bombing was done from heights as low as 6,000 feet and, although several aircraft were damaged by gunfire, only the aircraft piloted by Flight Lieutenant Whitford[10] of No. 83 Squadron was shot down. The result of this attack, as confirmed by later reconnaissance photographs, revealed five hangars and nine barrack buildings destroyed and five oil storage sheds damaged, and this target was put at the bottom of the list of those still requiring attention. In the 12 lighter attacks against aerodromes made by Second T.A.F. no R.A.A.F. squadron participated but individuals flew in the Mitchell and Boston bombers on eight occasions, those Australians serving with No. 98 Squadron R.A.F. joining in five attacks of this type.

[10] F-Lt A. P. Whitford, DFC, 406587. 467 Sqn, 83 Sqn RAF. Clerk; of Riverdale, WA; b. Perth, WA, 23 Feb 1921. Killed in action 9 May 1944.

Supplementary to this task of depressing German air potential was that of safeguarding Allied ports, communications and preparatory dispositions from enemy attack. Leigh-Mallory estimated the strength of available German long-range bombers as 450, capable of individual raids of up to 150 aircraft and a sustained effort of 25 bombers every night. (As mentioned above, the actual strength was 325.) In the period from 1st April to 5th June 1944, there were, however, only three short periods of *Luftwaffe* activity, totalling about 600 sorties. At Ford, No. 456, whose pilots had relished the opportunities afforded by the "little blitz" during March, found the medium-sized raids interspersed with night fighter-bomber attacks more difficult to oppose. The first three weeks of April were indeed uneventful, although a constant eager state of readiness was maintained at Ford. The Australians indeed were not engaged when the first large German raid was mounted on 19th April by 115 bombers striking at London from the east, but on the next night, when a few fighter-bombers ventured over the south coast just before midnight, "A" Flight of No. 456 were ordered aloft in terrible weather. These "red herring" raids by FW-190's and Me-410's severely tested ground control organisation and airmanship, for the German aircraft were quite as manoeuvrable and showed a faster rate of climb than the Mosquitos. On this occasion, however, Flight Lieutenant Brooks[1] climbed up through 23,000 feet of cloud, obtained a radar contact and then sighted visually an Me-410 flying very slowly in a clear patch. Brooks made an immediate surprise attack and the enemy fell out of control and crashed near Horsham in Sussex. The other Mosquitos had no opportunity to emulate this success and chased the "will o' the wisp" Germans through cloud until the enemy finally withdrew.

During the last week of April, the *Luftwaffe* mounted a series of raids, aimed mainly at Portsmouth and at shipping along the south coast of England, which brought the Australians well to the fore. Thus on 23rd April, when 90 enemy aircraft roamed over Dorset, Wiltshire and Hampshire, Wing Commander Hampshire,[2] commander of the squadron, shot down a Ju-88 near Swanage and was unfortunate that his firing mechanism failed as he closed in on a second bomber. Two nights later a two-phase attack was staged, 60 aircraft timidly approaching the coast between Poole and Beachy Head just before midnight, and a weaker force later aiming at Portsmouth. During the first phase most bombs fell in the sea and the deepest penetration inland was only 15 miles, but Flight Lieutenant Lewis[3] destroyed a Ju-88. During the second attack Flying Officer Roediger[4] and Flying Officer G. R. Houston each shot down a Ju-88,

[1] Sqn Ldr C. L. Brooks, 47998 RAF. 456 Sqn and test pilot duties Royal Aircraft Establishment, Farnborough. RAF aircraft apprentice; of East Dereham and Fakenham, Norfolk, Eng; b. Holt, Norfolk, 22 Oct 1920.

[2] Gp Capt K. MacD. Hampshire, DSO, DFC, 147. 12 Sqn; comd 6 Sqn 1941-42, 23 Sqn 1942, 22 Sqn 1942-43, 456 Sqn 1943-44. Regular air force offr; of Peppermint Grove, WA; b. Port Macquarie, NSW, 10 Sep 1914.

[3] F-Lt W. R. V. Lewis, 407969. 488 Sqn RNZAF, 456 Sqn. Bank clerk; of Cumberland, SA; b. Wayville, SA, 12 Jun 1922.

[4] F-Lt K. A. Roediger, 415227; 456 Sqn. Butcher; of Northam, WA; b. Balaklava, SA, 25 May 1921.

both raiders crashing in flames into the sea. The month ended with a night of success and disaster when the Australians were sent to investigate suspected enemy minelaying in the English Channel. One Mosquito failed to return but the indefatigable Hampshire engaged and destroyed a Do-217 at 1,200 feet. The Mark X radar was proving adequate to permit interceptions on high and low-flying raids alike, and as the crews became more practised they could hold on to even the most skilfully evasive targets.

The first fortnight in May was a period of bright moonlight and the *Luftwaffe* was quiescent, but on 14th-15th May nearly 100 bombers made scattered attacks at Portsmouth, Southampton and Bristol. This proved a peak night for the defences, which claimed 20 enemy aircraft destroyed or damaged. Flying Officer McEvoy[5] scored the only R.A.A.F. success when he shot down a Ju-188 over Salisbury Plain, after following it in over the coast. Flying Officer Arnold[6] during a similar raid on the next night destroyed a Ju-88 after a long chase. Several more lighter raids followed, but an attack on 22nd-23rd May, when Hampshire and Pilot Officer Sanderson[7] each claimed a Ju-88, virtually brought to an end the enemy attempts to hinder Allied preparations for invasion. The Australians had played a triumphant part in repulsing the *Luftwaffe*; of 22 German bombers destroyed by Air Defence of Great Britain night fighters during the six weeks before 5th June, eight fell to No. 456.

Meanwhile No. 464 led by Wing Commander R. W. Iredale was stationed at Gravesend and was mainly occupied with intruder activity over German bomber aerodromes. The principal task allotted at this time was to fly to enemy bases suspected of being active, and either to attack the bombers on their return or to bomb and machine-gun the airfield so as to cause dousing of the flare path and generally to impede efficient airfield control. Similarly intruders went to German fighter bases on nights when Bomber Command was active. In all No. 464 flew 93 sorties on 24 nights between 10th April and 27th May, the normal tactics being to cross the English Channel at 5,000 feet and dive through the coastal gun belt to an operational patrol height of 1,500 to 2,000 feet. If the area was quiet the bombs were brought back; these operations produced little excitement, although on 22nd May, while circling Rheine aerodrome, Flying Officer Crofts[8] was given a visual "permission to land" signal by the German controller so that he was able to run in and bomb the runway from a low height, without opposition.

It was not anticipated that *Luftwaffe* activity by day would be very large but the assembly areas for Allied forces in southern England had to be protected constantly against the threat of low-level "tip and run" raids by FW-190 fighter-bombers. Thus, although there were no high-

[5] F-Lt A. S. McEvoy, 411157; 456 Sqn. Warehouse assistant; of Randwick, NSW; b. Sydney, 25 July 1915. Killed in aircraft accident 19 Sep 1945.

[6] F-Lt D. W. Arnold, 418045; 456 Sqn. Clerk; of Hampton, Vic; b. Caulfield, Vic, 28 Jul 1921.

[7] F-O I. W. Sanderson, DFC, 413670; 456 Sqn. Farmer; of Condobolin, NSW; b. Trundle, NSW, 3 Jun 1920.

[8] F-Lt B. I. Crofts, 404745; 464 Sqn. Bank clerk; of Auchenflower, Qld; b. Nambour, Qld, 28 Feb 1921.

lights, the care and thoroughness with which defensive patrolling was maintained were very important to the uninterrupted marshalling of the assault forces, as each convoy was given continuous cover and handed on from sector to sector.

Intruder methods were also employed in daylight to preoccupy the enemy and to act as an offensive outer screen. One of the outstanding pilots engaged on these duties was Squadron Leader Scherf,[9] who had already scored several successes over French and German aerodromes during January and February 1944 while serving with No. 418 Squadron R.C.A.F. Scherf was appointed as an intruder controller at A.D.G.B. headquarters in March 1944, but his impatient spirit was far from satisfied with a staff position. While on two days' leave he revisited his squadron; on 5th April he flew to Lyon and St Yan airfields in France, where he claimed two enemy aircraft destroyed in the air and a further three on the ground. Scherf flew further "holiday" trips on 2nd and 16th May, visiting several *Luftwaffe* bases in north Germany and the Baltic area, and claimed six more enemy aircraft shot down and five others destroyed on the ground or at their moorings.

This lone swashbuckling was a brilliant contribution to the growing pressure by Mustang and Tempest squadrons in opportunist raids of the "Ranger" type. Many Australians took part and Flight Sergeant Kelly[1] of No. 65 Squadron had successful encounters both over France and Denmark. The Spitfire squadrons of No. 10 Group also relieved the monotony of escort patrols by flying provocative "Rodeo" sorties over French airfields, but although they were invariably in small formations the *Luftwaffe* was rarely tempted to dispute their presence.

This mixture of staunch defence and virile pugnacity produced an effect far more valuable than the sum of every individual encounter, for it led to an almost complete failure of German reconnaissance in the months preceding the invasion. No. 453, and 36 R.A.A.F. pilots on eight other squadrons, maintained special high-level and low-level patrols some 50 miles south of the Isle of Wight in the expectation that German reconnaissance aircraft, so successful during the campaigns of 1940-41, would make a special effort to discover Allied strength and dispositions. These flights, however, were almost as uneventful as the shipping escorts, for although there was a slight increase in activity during May the Spitfires seldom had more than a glimpse of enemy aircraft. The *Luftwaffe* flew only 125 reconnaissance sorties in the Channel area and no attempt was made to penetrate overland, the German pilots obtaining only occasional distant oblique photographs of their objectives. This failure was a vital factor in the inability of the German High Command to analyse accurately either the degree of preparedness or the direction of the assault and it contributed to a widespread dispersal of all German defences throughout the coastline of Europe.

[9] Sqn Ldr C. C. Scherf, DSO, DFC, 413671; 418 Sqn RCAF. Grazier; of Emmaville, NSW; b. Emmaville, 17 May 1917. Killed in motor car accident 13 Jul 1949.

[1] F-O W. P. Kelly, DFM, 420208; 65 Sqn RAF. Laminator; of Annandale, NSW; b. Paddington, NSW, 6 Jan 1923.

The fruits of air superiority also gave the Allies a freedom of tactical reconnaissance which contrasts sharply with the sorry enemy failure. Thirty-one R.A.A.F. pilots were spread among four squadrons of Second T.A.F. and four squadrons of No. 106 Group, Coastal Command, available for photographic reconnaissance. These R.A.F. units, in conjunction with similar U.S.A.A.F. squadrons, frequently flew, in one day, more sorties than the entire enemy effort for the six weeks before 5th June. One of the first requirements of General Eisenhower was a complete photographic cover of the invasion beaches and their immediate hinterland, but to hide any special interest in one area it was necessary to extend this cover from Holland to Brittany. When these photographs had been secured and relief models prepared, it was still necessary to keep a systematic watch to discover any change in the nature or extent of enemy defences. This general requirement entailed the following specific photographs:

(*a*) Obliques at wave-top height taken from three to four miles off shore to provide assault-craft coxswains with a preview of their allotted landing spot.
(*b*) Similar low obliques at 1,500 yards distance to provide platoon commanders with recognition landing points.
(*c*) Strip photographs pointing south so that infantry commanders could orientate themselves after leaving the beaches.
(*d*) Low-tide and high-tide cover of all beaches to show the extent and nature of underwater obstacles.
(*e*) The banks of all rivers and streams so that engineers could plan emergency bridges in advance.
(*f*) Suitable landing and supply areas for airborne forces.
(*g*) Possible sites for airfields, radar and W-T stations.
(*h*) Flooding areas and other areas of natural defences.
(*i*) Enemy dumps, headquarters, communications and concentrations.

Over a wider field a complete picture of German dispositions was built up, permitting accurate estimates of possible lines of enemy reinforcement. Although these tasks were regarded as routine assignments by the pilots, they demanded a very high degree of airmanship, patience, accuracy and courage in unarmed aircraft. Flight Lieutenant Sampson,[2] one of the most experienced pilots of No. 16 Squadron R.A.F., flew many sorties over the beaches chosen for American forces, and with a specially adapted camera obtained photographs so clear and detailed that even the barbs of the wire entanglements could be distinguished. Flying Officer K. G. Campbell of No. 541 quickly adapted himself to conditions very different from his previous experience on long-range bomb damage surveys, and flew several times during May in a formation of six aircraft which provided wide cover of the inland area from Calais to Cherbourg.

This reconnaissance activity, although directed primarily to army and naval requirements for the assault itself, provided also a basis for air plans during the preparatory period. Leigh-Mallory considered that next to winning air superiority "the dislocation of the enemy's lines of communication was the most important task set the Air Force". In view of

[2] Sqn Ldr D. W. Sampson, DFC, 407744. 16, 285 and 650 Sqns RAF; comd 288 Sqn RAF 1945. Optometrist; of Rose Park, SA; b. Solomontown, SA, 8 Jul 1915.

experience in Italy, and with the same consideration in mind as for *Luftwaffe* bases in France, it was intended "to force the enemy off the railways, initially within an area of 150 miles from the battle front". A proposal to accomplish this by mass attacks immediately before the amphibious assault was considered but rejected, as the enemy had demonstrated that railway tracks, like airfield runways, could be quickly repaired, and such a plan depended unduly on the vagaries of weather. Accordingly a longer term plan was adopted to attack a large number of railway repair and maintenance centres and thus progressively to reduce "the movement potential and the motive power of the railway system". In its final form the plan allocated 39 targets to R.A.F. Bomber Command, 23 to the American Eighth Air Force and 18 to the light bombers of A.E.A.F. A category system similar to that for airfield attacks was adopted, so that after each raid it could be assessed how many "live" targets remained.

There was considerable opposition to the plan, partly from political sources which deplored the possible loss of French lives and disruption of French economy, partly from military sources which considered that quick Allied advances towards Germany would equally be thwarted, but principally from within the air forces themselves. Harris fought tenaciously against any diversion of Bomber Command from strategic attack against German industry, denied emphatically the possibility of daylight operations or the ability to hit tactical targets accurately by night, and pointed out the dangers of allowing the enemy to transfer air units to France. The American Eighth Air Force had also prepared a plan to defeat Germany by systematic attack on her oil resources, and wished to prosecute this, while at the same time causing large air battles which would aid in the attrition of the *Luftwaffe* fighter resources. Late in March 1944, however, Eisenhower ruled that the rail interdiction campaign must proceed in the absence of a better plan to weaken the enemy materially before June. Once this decision was made, the task of evolving new techniques to attack these targets was not only tackled energetically by Bomber Command but solved in a most successful manner; the result was that, by 5th June, of the 80 prime targets, 51 were assessed as so heavily damaged that they warranted no further attack until vital repairs had been effected, 25 were severely damaged but had some installations intact, while 4 had received only superficial damage.[3]

Transport experts and operational research sections advised that for optimum damage to rail centres, a maximum concentration of 500-lb bombs should be dropped around the main aiming point, sufficient to achieve a stated overall density of strikes. This involved a reduction of the normal Bomber Command force to approximately 100 aircraft, and radically changed the bomb-load, which against German targets had

[3] The total result was achieved by the following forces:

	Category A	Category B	Category C
AEAF	14	2	2
RAF Bomber Command	22	15	2
Eighth USAAF	15	8	—

tended to consist of increasingly larger individual bombs. The vital difficulty of target marking was overcome partly because most of the targets lay within range of "Oboe", and partly by the low-level visual marking method evolved by No. 5 Group, in conjunction with the master of ceremonies technique, which, although it sometimes increased the danger to crews orbiting the target, reduced to a minimum wild bombing and thus prevented unnecessary casualties among French civilians.

The first Bomber Command attack was made on 6th-7th March 1944 against the marshalling yard of Trappes, south-west of Paris, but in the campaign proper, from 1st April to 5th June, 53 raids were made, mostly by Nos. 4 and 5 Groups, although on occasions other Bomber Command groups were active. R.A.A.F. squadrons joined in 25 of these attacks, the heaviest effort naturally being that of No. 466 in No. 4 Group and Nos. 463 and 467 in No. 5 Group.

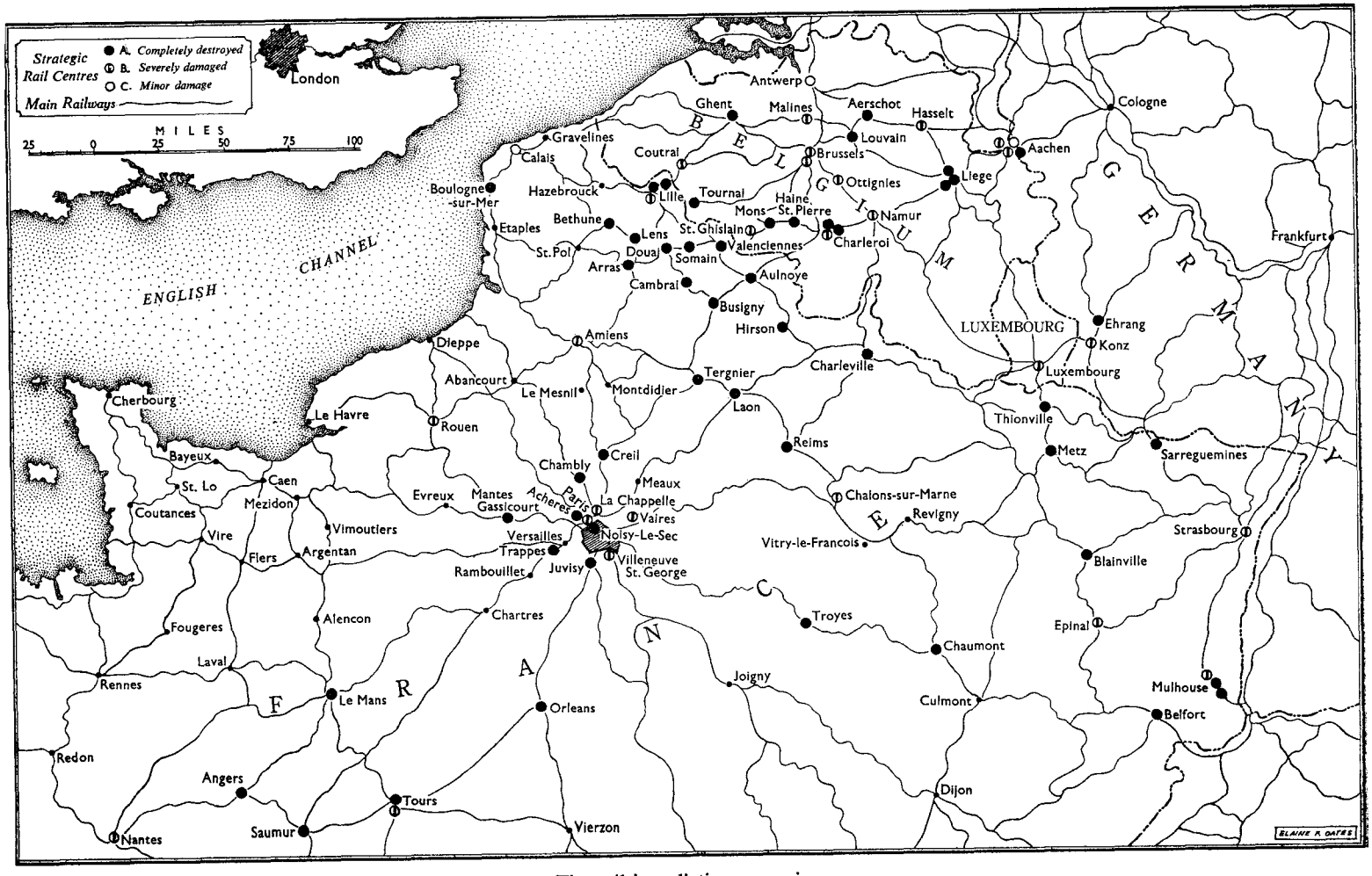
THE RAIL INTERDICTION CAMPAIGN

	Target	Total Force		RAAF Attacked		Bomb Tonnage	Total Missing	RAAF Missing
		Dis-patched	Attacked					
April 9-10	Villeneuve St George marshalling yards	225	210	466 460	15 2	994	—	—
April 10-11	Tours marshalling yards	180	173	463 467	17 18	947	1	—
April 10-11	Tergnier marshalling yards	162	154	466	15	692	10	2
April 10-11	Aulnoye marshalling yards	140	130	460	13	791	7	1
April 11-12	Aachen Main station	350	339	460 463 467	5 15 17	1,938	9	—
April 18-19	Paris-Juvisy marshalling yards	209	204	463 467	17 20	1,106	1	—
April 18-19	Rouen marshalling yards	289	282	460	3	1,538	—	—
April 18-19	Tergnier marshalling yards	167	161	466	15	720	6	1
April 20-21	Paris-La Chappelle marshalling yards	269	259	463 467	19 19	1,265	6	1

THE RAIL INTERDICTION CAMPAIGN—*continued*

	Target	Total Force		RAAF Sqn A	Attacked	Bomb Tonnage	Total Missing	RAAF Missing
		Dispatched	Attacked					
April 21-22	Ottignies marshalling yards	196	191	466	15	916	1	—
April 26-27	Villeneuve St George marshalling yards	217	202	466	16	852	1	—
April 27-28	Aulnoye marshalling yards	223	212	466	17	930	—	—
April 30-May 1	Paris-Acheres marshalling yards	128	122	466	14	530	—	—
May 1-2	Malines marshalling yards	132	120	466	12	535	2	—
May 6-7	Mantes Gassicourt marshalling yards	149	143	466	12	630	3	1
May 10-11	Lille marshalling yards	89	86	463 467	31	419	12	6
May 11-12	Hasselt rail centre	128	43	460	11	231	5	1
May 12-13	Hasselt rail centre	111	106	466	15	437	7	2
May 19-20	Boulogne rail centre	143	134	466	12	562	—	—
May 19-20	Tours rail centre	117	107	463 467	14 14	477	—	—
May 27-28	Nantes junction	104	54	463 467	14 17	255	—	—
May 31-June 1	Tergnier rail centre	115	101	460	23	539	2	—
May 31-June 1	Saumur junction	86	51	463 467	12 15	240	—	—
June 2-3	Trappes rail centre	128	124	466	15	481	16	2

All the attacks except those on Aachen (Main) and Ottignies resulted in important damage, although at several places more than one attack was required, especially at Villeneuve St George and Aulnoye where the enemy made a surprising recovery from the earlier attacks, and at Hasselt where on the first occasion difficult bombing conditions led the master



The rail interdiction campaign

bomber to abandon the operation and send aircraft back with their bombs. The largest raid of all against Aachen had to be staged from 20,000 feet because of the accurate German defences, and although it failed in its precise objective much damage and destruction was caused in the centre and south-western suburbs of this German city. Later raids, in which only individual Australians participated, had much greater success against the Rothe Erde and West railway stations at Aachen. The failure at Ottignies in Belgium was also by a relatively large force, and in clear weather crews reported a "fair concentration of bombing" from 13,000 feet, but in fact the railway workshops escaped damage and most of the bombs fell in the open marshalling yards.

The greatest success was in the Paris area on 18th-19th April, when No. 5 Group attacked Juvisy from heights as low as 8,000 feet. The two R.A.A.F. squadrons at Waddington dropped 231 of the total 1,105 tons of bombs, all but one of the 17 crews of No. 463 returning with aiming point photographs. Subsequent reconnaissance showed that engine sheds, carriage and wagon shops and trans-shipment bays were almost totally destroyed, and over large areas of the marshalling yards there was a mass of debris and twisted rails. The concentration of bombs at Juvisy was the best so far attained on a small target, and even seven weeks later, on 5th June, this rail centre was listed as needing no further attack. Casualties were light at the beginning of this campaign because all the westerly targets lay outside the normal enemy gun and fighter defended areas, but a significant increase in enemy counter-measures was noticeable during May when many Australians had to ward off night fighters. The heaviest setback suffered by the R.A.A.F. squadrons was on 10th-11th May when Waddington provided 31 of the total force of 86 Lancasters which attacked Lille, near the Belgian border. Squadron Leader H. B. Locke of No. 97 Squadron controlled this force and the bombing was very concentrated and effective. Gun defences were not unduly heavy but in numerous combats with enemy fighters Nos. 463 and 467 each lost one flight commander and two other crews, or 20 per cent of the crews sent out.

The last raid of the series, against Trappes near Paris on 2nd-3rd June, was again well executed but once more enemy fighters were waiting over the target; with the aid of moonlight and special flares they found many opportunities to attack. Two Halifaxes of No. 466 were shot down; another piloted by Flight Lieutenant J. H. Stevens was severely damaged by an Me-210 and at one stage of the homeward journey lost height until it was almost at ground level, although Stevens managed to keep his aircraft under control and reached base. The Halifax flown by Pilot Officer Bancroft[4] of No. 158 Squadron was damaged even more extensively in a desperate encounter with a Ju-88. All the instruments and the inter-communication system were damaged, the hydraulic system was

[4] F-O B. D. Bancroft, DFC, GM, 421635. 158 and 96 Sqns RAF. Compositor; of Pennant Hills, NSW; b. Rockdale, NSW, 29 Oct 1916.

destroyed, causing the bomb-doors and flaps to fall open, and a large hole, three feet long and the full width of the aircraft, was smashed in the floor. Another gaping hole appeared near the radio position, both turrets were useless, one of the petrol tanks was holed, and fires broke out in the bomb bay and near the rear bulkhead. Bancroft wrestled with the controls of this battered hulk while his navigator, Pilot Officer Fripp,[5] aided by the only two other survivors, tackled and extinguished the fires. The compasses had been destroyed but luckily the upper sky was clear and Bancroft steered by the North Star and reached Hurn airfield.

Attacks on the smaller but, in aggregate, no less important railway workshops and facilities were meanwhile conducted by the light bombers and fighter-bombers of A.E.A.F. Most of this work was performed by the American Ninth Air Force but Australians in Second T.A.F. joined in 29 out of the 46 attacks made by R.A.F. light bombers; the highest representation was on 2nd May, when 7 out of 40 Mitchells bombing Namur were captained by R.A.A.F. pilots. At the end of April, six Mosquitos of No. 464 made three experimental raids on Abancourt, bombing in daylight from 20,000 feet with the help of pathfinder aids, but results were poor and this method was discontinued. The normal practice was for varying forces of up to 60 Bostons and Mitchells to bomb[6] from 8,000 feet and to be escorted by four or five squadrons of Spitfires. No. 453, command of which Squadron Leader D. G. Andrews handed over to Squadron Leader D. H. Smith at the end of April, nine times acted as part of the protective screen for R.A.F. and U.S.A.A.F. light bombers during this period without once being challenged by enemy fighters. In general the bombers had great freedom of action and unless weather conditions over the target were bad, significant damage resulted. Some of these minor targets were well defended by guns but no Australians were shot down. Against the nearer targets, fighter-bombers were often employed as on 27th May, when Smith led No. 453 to Douai, each Spitfire dropping one 500-lb bomb in a dive from 12,000 to 5,000 feet and securing hits on the main buildings, sidings and tracks.

While emphasis was placed primarily on long-term damage to enemy repair and maintenance facilities, no opportunity was lost to attack locomotives and rolling-stock. Although it was thought unlikely that the estimated 12,000 locomotives available to the enemy could be so drastically reduced that in moments of supreme crisis he could not retain a sufficient number by simply cancelling all civilian traffic, yet it was held that in conjunction with the long-term plan, attacks on locomotives would influence German ability to reinforce and supply his forward troops. As Allied air superiority became more pronounced, no fewer than 3,932 sorties[7] were made by fighters against railway rolling-stock in France

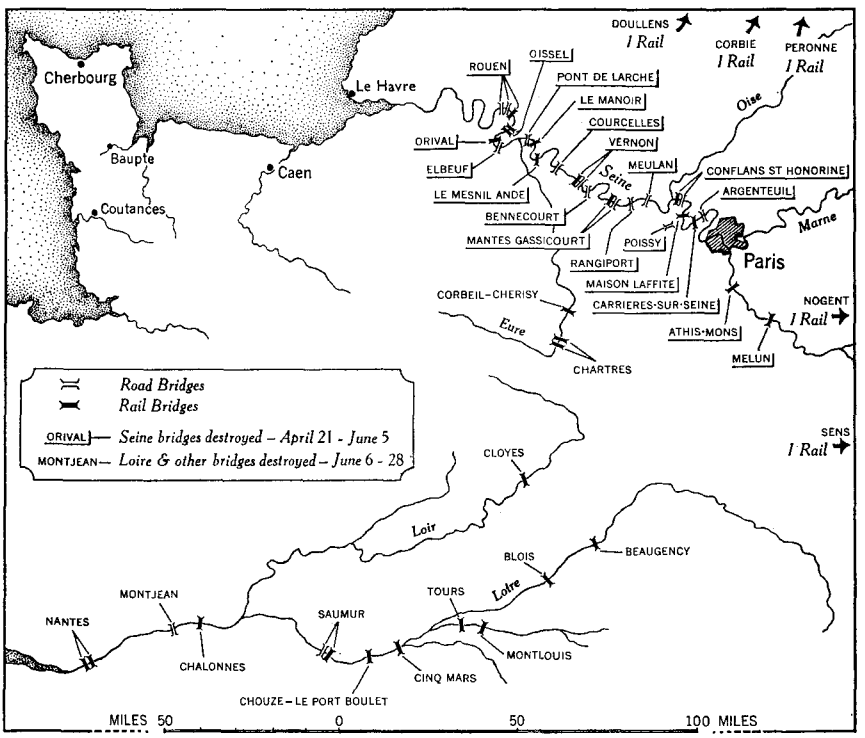
[5] F-O C. F. A. Fripp, DFC, 423092; 158 Sqn RAF. Farm labourer; of Tuggerah, NSW; b. Wyong, NSW, 27 Jul 1923.

[6] The bomb-loads were eight 500-lb for Mitchells and four 500-lb for Bostons.

[7] 2,201 by AEAF and 1,731 by 8th USAAF.

between 19th May and 5th June, an average of more than 200 sorties a day. No. 453 was engaged on this duty only on 21st May, when three small formations took off at hourly intervals during the morning to patrol south of the Seine and damaged one train, several stationary trucks, a military staff car and a lorry, for the loss of one Spitfire.

Allied plans envisaged destruction of the road and rail bridges over the Seine and Loire Rivers, not only to hamper enemy reinforcement



but to make him stand and fight in Normandy. To safeguard the secret of the area chosen for invasion, only the Seine bridges could be attacked beforehand, this action pointing equally to an attempt to seal off the Calais area. Previous experience in Italy and in experimental attacks showed that the most economical method of securing vital hits on bridges was by fighter-bombers, although heavy and medium bombers of the U.S.A.A.F. were also employed. The contribution of Second T.A.F. was not large, but R.A.A.F. pilots on Typhoon, Mustang and Spitfire squadrons all made at least one attack of this type. No. 453 on 27th April three times went out in full squadron strength, bombing a road bridge near the base of the Cherbourg peninsula at noon, the railway bridge at Baupte in mid-afternoon and Pont de la Rocque, near Coutances in

the early evening. This last attack achieved decisive results, severing the main span at the northern end and destroying the approaches and some buildings at the southern end. The R.A.A.F. Spitfires were again sent out on 2nd May when a force of 56 aircraft attacked a viaduct on the main line between Le Havre and Rouen, diving down to 3,000 feet. Pilots of No. 453 claimed hits on the centre and northern end of this objective. The main weight of attack against the Seine bridges proper was concentrated in the last 10 days before 5th June and Australians played only a minute part in achieving the final result.

The weakness of German aerial reconnaissance gave the Allies great freedom in preparing for their cross-Channel invasion, but it was appreciated that tactical surprise could not be gained unless the impressive enemy radar network was seriously damaged. Accordingly air attack was ordered against all radar installations which could not be jammed by electronic counter-measures, all those capable of clear detection of shipping, those used for controlling coastal batteries, and any likely to threaten airborne operations. To mislead the enemy, two targets outside the assault area were attacked for every one inside, so that this campaign, which began on 10th May, in fact ranged from Ostend to the Channel Islands. The first targets were long-range aircraft reporting stations, followed on 18th May by radar installations for night-fighter and gun defences. On 25th May, 42 sites holding 106 installations were detailed for attack, and by 3rd June, the destruction of 14 of the sites had been confirmed. To conserve effort it was then necessary to concentrate on 12 of the remaining 28 sites, the choice lying equally between air and naval authorities, and these were repeatedly battered in the remaining three days of the preparatory period.

Before 6th June aircraft of A.E.A.F. flew 1,668 sorties against German radar stations; 694 by rocket-firing Typhoons, 759 by Spitfire and Typhoon dive bombers, and 215 by light bombers. Low-level attack on these exceptionally well-defended installations demanded great skill and daring. Casualties were often high, as on 5th June when 25 Typhoons made a most successful attack on the "Hoarding" equipment used for long-range aircraft reporting, at Cap de la Hague, firing rocket-projectiles after a power dive down to 2,000 feet. Warrant Officer Pugh[8] and two other pilots were shot down. Pilot Officer McGovern[9] of No. 181 Squadron R.A.F. and Flying Officer Roberts[1] of No. 164 with six and five attacks respectively were prominent among the R.A.A.F. pilots engaged in these attacks as well as in missions against railways and airfields. No. 453 itself made four attacks. On 30th May, Smith led 12 Spitfires to dive-bomb the radar station at Cap D'Antifer, and the same afternoon, in

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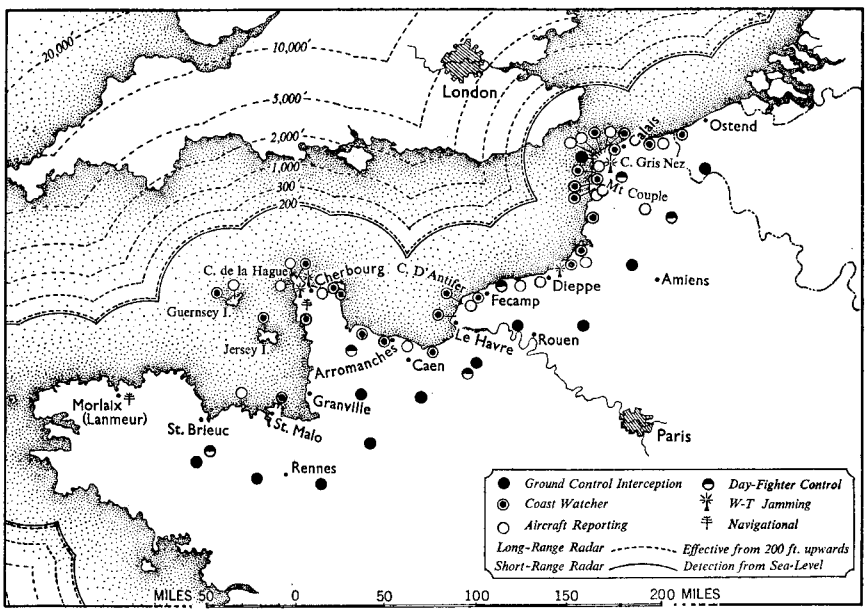
[8] W-O J. H. Pugh, 416998; 175 Sqn RAF. Bank clerk; of Murray Bridge, SA; b. Murray Bridge, 4 Oct 1919. Killed in action 5 Jun 1944.

[9] F-Lt T. H. McGovern, DFC, 416269. 532, 195 and 181 Sqns RAF. Clerk; of Victor Harbor, SA; b. Adelaide, 25 Nov 1921.

[1] F-O A. E. Roberts, 409775; 164 Sqn RAF. Clerk; of Middle Park, Vic; b. Collingwood, Vic, 25 May 1918. Killed in action 6 Jun 1944.

company with No. 602, direct hits were gained on the "Wurzburg" apparatus at Arromanches. Flight Lieutenant P. V. McDade led the Australians on 2nd June against the "Hoarding" at Cap Gris Nez and although this was a failure, much better results were obtained two days later at Cap de la Heve near Le Havre.

During the first week in June, R.A.F. Bomber Command joined in this campaign against enemy early-warning equipment by attacks on two navigational stations and four W-T stations important in the general defence of the assault area. Stations at Sortesville, south of Cherbourg,



The German radar network

Lanmeur and Mont Couple were put out of action by forces containing only a few Australians, but on 2nd-3rd June No. 460 contributed 23 Lancasters to a raid by 107 aircraft against the W-T station at Berneval-le-Grand near Dieppe. A concentrated attack demolished all seven aerial masts, obtained direct hits on several of the main buildings protected by blast walls and badly shattered some of the unprotected minor buildings. The previous night 16 Halifaxes of No. 466 had been in a similar force attacking Ferm d'Urville, near Cherbourg, the headquarters of the German signals Intelligence service in north-west France, but the target had been completely shrouded in cloud and no great optimism was shown by pilots returning after bombing on sky markers. The second attempt to destroy Ferm d'Urville on 3rd-4th June was made by No. 5 Group, Nos. 463 and 467 each dispatching 13 Lancasters in a total force of 100. Flight

Lieutenant van Raalte[2] of No. 97 headed the Pathfinders, and dropped the spot marker in the centre of the target. The crews of the R.A.A.F. aircraft which then pressed in to drop 148 of the total 509 tons were confident of success from their own observation of the bombing. Wing Commander W. L. Brill of No. 467 reported that he circled the target during the whole attack and had never seen such a close concentration of bomb-bursts. The subsequent photographic interpretation report stated: "The station is completely useless. The site itself is rendered unsuitable for rebuilding the installation without much effort being expended in levelling and filling in the craters."

The success of all these preparatory attacks went a long way towards blinding the enemy's early-warning system. The commitment of air power in this respect had been well fulfilled, for although many radar installations remained untouched these were to be nullified by other means. Far smaller success attended the attacks on coastal batteries in the rapidly growing defences of the vaunted "West Wall". Including those still under construction there were 49 known gun batteries capable of firing across the approaches to the chosen assault area, and it was imperative to reduce to a minimum the number which would have to be engaged by warships escorting the invasion fleets. Again to avoid showing particular interest in any one area, diversionary attacks twice as numerous as the real ones were made in other areas. The campaign began on 10th April; the effort expended by 5th June is shown in the accompanying table:

(*a*) Inside assault area						
A.E.A.F.	1,755	sorties	2,886·5	tons	of	bombs[3]
Eighth U.S.A.A.F.	184	„	579	„	„	„
R.A.F. Bomber Command	556	„	2,438·5	„	„	„
(*b*) Other areas						
A.E.A.F.	3,244	„	5,846	„	„	„
Eighth U.S.A.A.F.	1,527	„	4,559	„	„	„
R.A.F. Bomber Command	1,499	„	6,785	„	„	„
	8,765	„	23,094	„	„	„

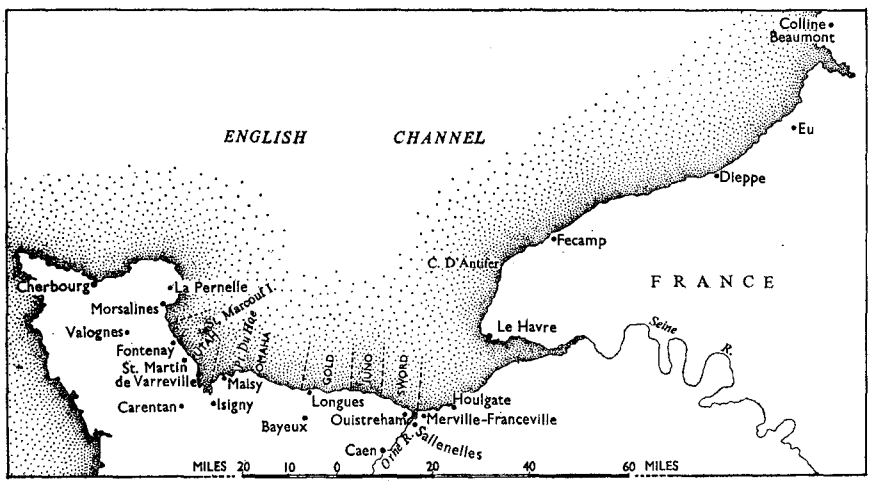
The R.A.A.F. heavy-bomber squadrons made nine attacks before 5th June but the first did not come until 8th-9th May when six Halifaxes of No. 466 joined in a small-scale attack on a six-gun battery at Morsalines. The same target was attacked again on the following night, 13 R.A.A.F. Halifaxes being included in the total force of 62 sent out by No. 4 Group. Good results including direct hits on an ammunition dump were achieved, and after a third attack by heavy bombers and one by medium bombers the site was abandoned and maintained only as a dummy.

Meanwhile on 11th-12th May 13 Halifaxes made one of the diversionary attacks on a battery at Colline Beaumont, and No. 466 returned to the same target on 24th-25th May. Similarly a force from No. 1 Group

[2] F-Lt H. S. van Raalte, 415220; 97 Sqn RAF. Metal rigger; of North Perth, WA; b. Guildford, WA, 21 Jan 1913. Killed in action 23 Jun 1944.

[3] 495 60-lb rocket projectiles were also employed by fighters.

including 10 Lancasters of No. 460 had begun operations against one of the real targets between Merville and Franceville on 9th-10th May, and, when this and a second attack were indecisive, 20 R.A.A.F. Lancasters were dispatched against this battery on 27th-28th May causing considerable damage to the whole site, although the heavily casemated guns still appeared intact. Three nights earlier No. 460 had set a new squadron record, 24 Lancasters carrying no less a load than 133½ tons of bombs



against a battery—one of the "red herring" targets—outside the assault area. The final attack involving No. 460 was when 22 Lancasters (in a total force of 56) attacked Eu on 28th-29th May. On the same night Nos. 463 and 467 made their single and outstanding contribution to this preparatory bombing of coastal gun emplacements when they sent out 21 Lancasters with 55 others to attack St Martin de Varreville. No. 463 crews in particular returned with excellent photographs showing the aiming point and the markers, one of the best being obtained by Flying Officer Schultz,[4] who was on the last trip of an extremely meritorious tour of operations. A report on this raid by the battery commander was later captured and stated:

> Several direct hits with very heavy bombs were made on No. 3 casemate which apparently burst open and then collapsed . . . the rest of the casemates remained undamaged . . . the iron equipment hut which contained signals apparatus, the armoury, the gas chamber and artillery instruments received a direct hit and only a few twisted iron girders remain . . . the men's canteen received several direct hits and was completely destroyed. The messing huts, containing the battery dining room, the kitchen and clerk's office were completely destroyed by near misses.

Thus, although in most of these attacks the strongly protected guns themselves remained intact, the enemy ability to range the guns accurately,

[4] F-Lt K. Schultz, DFC, 417003; 463 Sqn. Fruit grower; of Summertown, SA; b. Summertown, 6 Aug 1921.

or to use them to full advantage was greatly reduced by the demolition of ancillary buildings. Failure against the casemates themselves was chiefly due to the fact that only 1,000-lb bombs were available and few of these were armour-piercing, so that on the eve of the assault Leigh-Mallory claimed only that hits had been secured on "essential elements" of five batteries within the invasion area and on nine outside.

This result was not attributable solely to Bomber Command, because an equal tonnage of smaller bombs was rained on other gun-defended areas by light and medium bombers of A.E.A.F. On 14 occasions small numbers of R.A.A.F. men, principally from Nos. 88, 98 and 226 Squadrons R.A.F., were engaged in these medium-level daylight attacks which were more hazardous and hotly contested than the night raids.

Thus far air operations had been directed principally to ensuring that Allied divisions could be transported and landed in a given area with a minimum amount of interference from the enemy. Other attacks designed to cripple German potential in subsequent battles were, however, in progress at the same time, and during May Bomber Command made heavy attacks on two of the largest German military camps in western Europe. Thus on 3rd-4th May 338 heavy bombers, including 17 from No. 460, 12 from No. 463 and 10 from No. 467 raided Mailly-le-Camp, a tank depot and park then housing considerable elements of the *21st Panzer Division,* the main training centre in France for German armoured units. To ensure good results, a calculated risk was taken in dispatching this force in good visibility and bright moonlight. The *Luftwaffe* reacted promptly, and in very heavy engagements 42 bombers, including seven from the R.A.A.F. squadrons were shot down. The bombing from between 5,000 to 8,000 feet was very efficient, however, and the damage inflicted was on a tremendous scale. In one section of the camp, out of 47 buildings housing the transport section and barracks, 34 were totally destroyed and the others severely damaged, while in another large group of barrack buildings almost all were heavily hit. The report of the commander of the *21st Panzer Division* stated:

> The main concentration was accurately aimed at the most important permanent buildings, the ammunition stores and an ack-ack battery . . . in that part of the camp which was destroyed, concentration of bombs was so great that not only did the splinter proof trenches receive direct hits, but even the bombs which missed choked them up and caused the sides to cave in. . . .

Eight nights later, on 11th-12th May, 193 Lancasters set out to attack a military camp at Bourg Leopold in Belgium, but this was cancelled by the master bomber before it was completed owing to difficulties in target-marking. A little over half the force, including 11 crews from No. 463 and 14 from No. 467, had already bombed but few claims were made of real damage. This raid aroused only moderate fighter opposition, but the non-return of Group Captain Balmer was a great blow to No. 467, for this was his last trip on operations and he was to have passed on to a higher command. It was typical of Balmer that he should have

flown on this occasion, for only the night before three crews, including that of Squadron Leader Smith,[5] a particularly well loved veteran flight commander, had failed to return from a raid on Lille. Such losses inevitably affected the spirit of junior crews, and Balmer's action in leading the next sortie was another, and unfortunately the last, act of his fine record of leadership. It was indeed fortunate for No. 467 that Wing Commander Brill, a very experienced officer then serving his second tour with No. 463, was available to assume command, and he proved a very worthy successor to Balmer both in administration and in the dashing type of leadership which had brought the Waddington squadrons to the fore in No. 5 Group. The first raid on Bourg Leopold was more happily remembered as the occasion of the hundredth operation of one of the Lancasters of No. 467—an event of psychological importance to the ground crews, who knew too well that the average life of a bomber was fewer than 30 trips. A second attack on Bourg Leopold was made by 331 aircraft on 27th-28th May and caused devastation among large buildings and barrack blocks similar to that achieved at Mailly-le-Camp. Fifteen Halifaxes of No. 466 joined in this raid and, although rocket-firing fighters intercepted the bomber stream, only one R.A.A.F. aircraft was shot down, while Flying Officer Dobinson,[6] a rear gunner in another aircraft, destroyed one of the attackers, his victory being witnessed and confirmed by other crews.

A considerable number of light- and fighter-bomber raids were made on smaller military targets, including *châteaux* used by the enemy as headquarters, telephone exchanges, electric power and switching stations; as well as troop concentrations and billets. The campaign extended also to small enemy munition dumps throughout north-western France which, although well camouflaged or hidden in forests, were blown up or set on fire by bombs and rockets. Reserves of petrol, oil and ammunition were in this way denied to the enemy, while his main lines of communication were under constant attack. The seven largest ordnance factories and depots were reserved for attack by R.A.F. Bomber Command, and the R.A.A.F. squadrons raided five of these targets late in April or early in May.

A No. 5 Group attack on 28th-29th April 1944 against the largest German-controlled French explosive factory, at St Medard-en-Jalles near Bordeaux, was abortive, but the next night in cloudless weather every important building in the works was heavily damaged. For this second raid the Waddington squadrons dispatched 20 Lancasters led by Smith of No. 467 and Squadron Leader M. Powell of No. 463, who for the sake of accuracy pressed in to bomb at 4,000 feet. Almost from the outset terrific explosions resulted, and all the members of Smith's crew were lifted from their seats. Smoke quickly rose to 5,000 feet and

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[5] Sqn Ldr D. P. S. Smith, DFC, 400495. 103 Sqn RAF, 467 Sqn. Industrial chemist; of Mosman, NSW; b. Sydney, 13 Mar 1917.

[6] F-Lt D. J. Dobinson, DFC, 424530. 466 and 462 Sqns. Cost clerk; of Wollongong, NSW; b. Newtown, NSW, 4 Apr 1919.

forced later arrivals to attack from greater heights. Similarly spectacular results were obtained on 30th April-1st May when No. 1 Group sent 116 Lancasters against a very large ammunition dump near Maintenon. The 14 aircraft of No. 460 attacked from 8,000 feet but in excellent visibility they had no difficulty in identifying the markers even when the whole area became a mass of flames and "a grand firework display". Squadron Leader Donaldson[7] reported that the marking and control of this attack had been excellent and that he could still see the fires and explosions when 120 miles away on his return journey.

Locke of No. 97 and Smith of No. 467 were deputy controllers for a raid by 68 aircraft against another dump at Sable-sur-Sarthe on 6th-7th May, when No. 5 Group continued its audacious practice of bombing from extremely low heights. Wing Commander Tait,[8] with an aircraft and crew of No. 467, even went down to between 1,000 and 1,500 feet so that members of the R.A.F. Film Unit could photograph the huge fires and explosions which practically destroyed the ammunition-filling and storage units. At the very same moment, 30 miles to the south-east, five Lancasters of No. 460, led by Group Captain H. I. Edwards, were engaged with 47 other aircraft of No. 1 Group in wiping out the ammunition dump at Aubigne-Racan. Twelve crews of No. 460 were again out the following night in a force of 54 which attacked the ordnance depot at Rennes; this had been a B.E.F. centre in 1939-40. The bombing proceeded smoothly against two aiming points, but the immediate results were not as spectacular as those on the previous raids, and later photographs showed that only one of the sections of the depot had been destroyed. The general success of this series of raids was remarkable, considering the relatively small forces employed; and, at a time when fighter defences were meagre, no R.A.A.F. aircraft were lost.

While Bomber Command and A.E.A.F. were preparing the stage for the final liberation of Europe, Coastal Command was ensuring that no logistical problems would hamper Allied plans. The great victories of 1943 and the smashing of each recurring attempt by U-boats to regain their former strength had given Allied aircraft undisputed mastery over the whole of the North Atlantic. The U-boats were clearly being husbanded by Admiral Doenitz, the Commander-in-Chief of the German Navy, in anticipation of a major effort against Allied invasion fleets in the English Channel, and, with the war at sea thus strategically quiescent but tactically successful, air patrols ensured the ceaseless build-up in the United Kingdom of munitions and supplies. Allied shipping losses during April 1944 were the lowest for four years, and twice as many U-boats as merchant ships were sunk during that month. Shipping losses declined further in May to a mere 18,000 tons, representing two independently

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[7] W Cdr D. R. Donaldson, MVO, AFC, 400631. 44 Sqn RAF, 460 Sqn; comd 463 Sqn 1944. Accountant; of North Brighton, Vic; b. Calcutta, India, 7 Jan 1915.

[8] Gp Capt J. B. Tait, DSO, DFC, RAF. 51 and 35 Sqns RAF, 467 Sqn; comd 51 Sqn 1940-41, 1652 Conversion Unit 1941-42, 78 Sqn 1942, 22 OTU 1943-44, 617 Sqn 1944; Operations Offr, 53 and 54 Bases, Waddington, 1944, 100 Gp HQ 1944-45. Regular air force offr; of Abereynon, Glamorganshire, Wales; b. Manchester, England, 9 Dec 1916.

routed ships in the South Atlantic and one in the Mediterranean. The knowledge that their vigilance was resulting in great Allied material superiority *vis-à-vis* Germany helped crews to maintain philosophically their arduous patrols, which otherwise would have seemed dull and monotonous. They were well aware that a final battle would have to be fought against the still numerically powerful U-boat fleet, which was already being fitted with the *Schnorkel* device by which it hoped to frustrate air patrols.

This sense of standing on the brink of important events led men to enter whole-heartedly into a vast training program, which during April and May for No. 461 overshadowed even its operational duties. Wing Commander Hampshire,[9] brother of K. MacD. Hampshire mentioned earlier in this chapter, was rapidly converting No. 461 to a role of night-search and strike, entailing not only crew familiarisation and drill with Mark VI radar, but, in the absence of Leigh lights, a new technique of attack with special 1.7-inch flares. Dummy radar homing approach and attack exercises were constantly maintained with friendly submarines in special bombing "sanctuaries". The Sunderlands also joined in a special operational exercise to test the plan for sealing the western end of the English Channel against U-boats. H.M.S. *Viking,* with batteries and air tanks fully charged, attempted to travel 90 miles at her best surfaced or submerged speed, as occasion allowed, through an area patrolled by aircraft of No. 19 Group. Out of 28 hours 7 minutes spent on this passage, *Viking* was surfaced only for 2 hours 2 minutes in 9 different spells, being forced to submerge each time before she could charge either batteries or tanks, and her average progress was less than 3 knots. Her commander reported that "further progress . . . would have been very uncomfortable and that the U-boat meeting such opposition would find it exhausting and demoralising". Even so, *Viking's* partial success had been aided by bad weather and radar failures among the searching aircraft, and this further highlighted the need for bringing all individual airmen to a peak of technical proficiency. Similar trials were repeated and the general principle of barring U-boats from mid-Channel by an "unsurmountable fence" of air patrols was fully vindicated in the minds of aircrew.

During April, No. 10 flew 64 daytime patrols in the Bay of Biscay without incident, but at Mount Batten also Australians were caught up in the general excitement of invasion preparations, although at first these consisted in hindrances to the flying-boats. The vast numbers of naval and troop-carrying ships, which began to throng Plymouth Sound, caused congestion unequalled since the fall of France almost four years before. Taxiing within the harbour even by day had its difficulties and night operations were almost impossible. There was also a recurrence of air raids during which the *Luftwaffe,* either in attempting to drop radio-controlled bombs (Fritz X) on Devonport, or during passage towards

[9] W Cdr J. MacL. Hampshire, DFC, 256. 11 and 33 Sqns; comd 41 Sqn 1942-43, 461 Sqn 1944; HQ Coastal Cd RAF 1944-45. Regular air force offr; of Cottesloe, WA; b. Port Macquarie, NSW, 27 Feb 1916.

Bristol, threatened Mount Batten. In the event the enemy efforts were so scattered and poorly pressed that no damage resulted, but the threat was sufficiently real for Wing Commander R. N. Gillies to encourage all aircrew to construct small foxholes on the hill behind the station. After the first few air raid alerts, however, the Australians became rather selective in their reactions. On awakening to the insistent wail of the air raid sirens, many would lie in bed listening for sounds of approaching aircraft, and only if reconnaissance flares were dropped indicating that Plymouth was indeed the chosen target would they reluctantly leave their beds. Even then the favourite procedure was to pad down to the kitchen in search of a hot drink before watching the raid from some vantage point, such as the sandbagged portico of the officers' mess, rather than take full precautionary measures. These air raids added to the congestion of the harbour in impeding training, for Gillies had the task of providing an almost entirely new set of captains to replace his experienced pilots. That this was done in time under existing conditions was a remarkable feat, for No. 10 was still independent of the normal operational training unit organisation. The devoted work of craftsmen and technicians, the skill of training officers, and the expedient of performing some night flying at other bases, provided No. 10 with ample young, capable and eager captains for the expected clash with the U-boats in midsummer.

The majority of R.A.A.F. men in other squadrons of No. 19 Group experienced the same sense of expectancy as Nos. 10 and 461 during this interim period, but towards the end of April a few were involved in attacks on cautious reconnaissance U-boats, but in all three instances no decisive results were obtained. The U-boats were now using their guns freely at night, and on 16th-17th April two Liberators of No. 53, each navigated by an Australian, failed to return from patrol, and one of these was almost certainly shot down just after it had sent a message indicating that it was attacking a U-boat. The number of R.A.A.F. men engaged on these duties rose considerably with the move of Leigh-light squadrons from other areas and the heavy reinforcement of all squadrons with surplus crews. The abundant supply of aircrew also made it possible to fly Liberator patrols with two navigators, and many Australians awaiting operational postings volunteered and were found suitable for this employment. In No. 19 Group, however, throughout May, training still predominated over operations, although nearly 10,000 hours were spent searching for U-boats. No. 10 flew 52 sorties and No. 461 flew 40 by night without finding any target at which to strike, although on 4th May Flight Lieutenant Ryan[1] found and photographed an oil patch and survivors from *U866* sunk by aircraft the previous night. Enemy aircraft were seen on three occasions but no combats resulted, and the only untoward incident during the month was on 6th May, when Flight Lieutenant Cargeeg's[2] Sunderland developed engine trouble at the southern

[1] F-Lt T. M. Ryan, 409231; 10 Sqn. Clerk; of Kew, Vic; b. Melbourne, 27 Jul 1917.

[2] F-Lt R. E. Cargeeg, 415398; 10 Sqn. Accountant; of South Perth, WA; b. South Perth, 5 Mar 1916.

end of his patrol and was forced to re-cross the Bay on three engines at the mercy of chance enemy fighters.

The unnatural calm before the gathering storm in the south-west was not reflected in the north-east, where No. 18 Group, although sadly depleted in strength, initiated a vigorous campaign against U-boats in transit to the Atlantic or making for Norwegian ports, where they were being gathered together in anti-invasion task forces. This Coastal Command offensive opened on 16th May and the most probable enemy routes from the Baltic were closely watched. An attack was made on the very first day, and before the end of the month 21 sightings and 13 attacks had resulted from this well-planned operation, for which only two Liberator and three flying-boat squadrons were available although the Sunderlands of No. 4 Operational Training Unit were also temporarily employed with great effect. Australians in this area, who had maintained long negative patrols during the preceding months and had bemoaned their lot in remaining in the north-east while their friends on other squadrons gathered in No. 19 Group, took a prominent part in this offensive. Thus, early on 18th May, Warrant Officer Henderson,[3] front gunner of Catalina S/210, used his comparatively ineffectual Vickers machine-gun to such good purpose that he killed, or prevented from firing, the anti-aircraft gun crews of *U241,* while his pilot coolly dived down and sank the enemy submarine with well-placed depth-charges. Henderson joined in another attack against a U-boat on 22nd May and although this and a similar attack the previous day by a Catalina of the same squadron, navigated by Pilot Officer Mott,[4] failed to achieve a "kill", they played a valuable part in the general pressure which deprived the enemy of freedom of action.

The position of the Catalina attacks implied that a group of U-boats was bound for Arctic waters, apparently in an attempt to create a diversion on the supply route to Russia. The aircraft patrols were accordingly adjusted and almost immediately success was gained in the sinking of *U675* by a Sunderland from No. 4 Operational Training Unit, captained by Flight Lieutenant Frizell.[5] Frizell had already completed an uneventful operational tour with No. 423 Squadron R.C.A.F. and, although he was heading a makeshift crew of instructors and pupils, his somewhat fortuitous chance to strike at the enemy was crowned by a magnificent and fearless attack. The patience, skill and watchfulness which had availed little during his Atlantic patrols now made him the second man to sink a U-boat while serving at an operational training unit.[6] On the same day a Catalina of No. 210 seriously damaged a second U-boat, which

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[3] F-O R. J. Henderson, DFC, 409700. 190 and 210 Sqns RAF. Brewery employee; of Box Hill, Vic; b. Moorabbin, Vic, 3 Sep 1915.

[4] F-Lt W. D. Mott, 425455. 190 and 210 Sqns RAF. Geologist; of Townsville, Qld; b. Charters Towers, Qld, 7 Sep 1915.

[5] F-Lt T. F. P. Frizell, DFC, 402332. 201 Sqn RAF, 423 Sqn RCAF, 4 OTU, 102 Sqn RAF. Bank clerk; of Balgowlah, NSW; b. London, England, 9 Dec 1918.

[6] The other was also an Australian—Sgt A. J. Benson of No. 10 OTU. See Volume III, p. 439, in this series.

was then hunted by as many aircraft as could be sent to the position of the attack.[7] Flight Lieutenant W. G. Loney in Liberator L/59 began a square search that evening and at 9 p.m. encountered an enemy destroyer in company with two flush-decked U-boats. He made an attack with his forward-firing guns from 500 feet, securing strikes on all three vessels, but before he could pierce the anti-aircraft barrage to make a low-level depth-charge attack, he was driven off by an Me-110. During the same night two R.A.A.F. gunners in C/59 attacked a U-boat with machine-gun fire, while Flight Sergeant Playford[8] in S/59 again located the enemy destroyer and at 7.30 a.m. next morning participated in an attack which sank *U990*. Two days later Flight Sergeant McCleary[9] was wireless operator-air gunner in another crew of No. 59, which sank *U292* in an area farther west.

The relentless air campaign which had sunk six U-boats in eleven days, forced the enemy to ever more cautious tactics. Bad weather also intervened to hamper the searchers and although five more U-boats were seen during May, only one hurried attack was possible. There was no relaxation of pressure, however, and on 3rd June, the sinking of *U477* by an R.C.A.F. Canso off south Norway gave further encouragement on the eve of the Allied invasion that the vast air preparations in No. 19 Group would be equally successful.

The second major responsibility of Coastal Command during this preparatory phase was to attack enemy surface vessels. The strike wings were moved to bases in Nos. 16 and 19 Group areas to deny entrance to enemy minor warships attempting to attack either flank of the invasion convoys. Thus No. 455 under Wing Commander J. N. Davenport moved on 2nd April to Langham in Norfolk where it began intensive bombing training and was singled out for special praise for the way in which crews, although thirsting for action, enthusiastically prepared themselves by individual squadron and wing exercises to defeat any combination of naval forces which the enemy might throw into the battle. The R.A.A.F. Beaufighters now had a dual role, as anti-flak aircraft for wing strikes and as armed reconnaissance aircraft operating singly or in small groups. In the first role they were to employ their four 20-mm cannon to silence ship-borne guns at the critical moment when the torpedo-carrying aircraft were closing in, while on reconnaissance flights each Beaufighter carried two 500-lb and two 250-lb bombs to use against any shipping encountered once a sighting report had been sent back to base.

Although training had greatest emphasis, opportunities came to test the general level of preparedness by attacks on merchant shipping along the European coastline. Eight Beaufighters of No. 455 made independent reconnaissances on 19th April and as a result of reports from Squadron

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[7] This vessel *U476* was in fact sunk but the air hunt was ordered because of lack of definite proof at that time.

[8] W-O A. R. Playford, 420627; 59 Sqn RAF. Junior clerk; of Grafton, NSW; b. Murwillumbah, NSW, 5 Jan 1923.

[9] F-O R. L. McCleary, 422238; 59 Sqn RAF. Clerk; of Randwick, NSW; b. Kerang, Vic, 12 Jan 1923.

Leader A. L. Wiggins and Flying Officer Barbour,[1] strike forces from other squadrons were able to locate and attack convoys. Even more satisfactory was the first strike by the Langham Wing on 6th May when 12 R.A.A.F. Beaufighters escorted 6 torpedo Beaufighters of No. 489 Squadron R.N.Z.A.F. in an evening attack against an enemy convoy of 7 merchant ships west bound in company with 12 escort vessels. Although the convoy was more than an hour's flying time from Langham, the attack was delivered only two hours and a half after receiving orders to prepare the strike. The Australians attacked from ahead, out of the sun, and round to the port beam of the convoy, from an altitude of 800 feet down to mast height. Many hits on the leading naval escorts greatly diminished the volume of gunfire from the convoy so that the torpedo carriers had a clear approach, ending in the sinking of one merchant ship.

On 14th May 12 R.A.A.F. aircraft formed the starboard anti-flak cover for a similar strike in very bad weather. Davenport led the Langham Wing as far as Norderney without finding his target so he wheeled the formation on a reciprocal course and finally at 1.15 p.m. found a convoy near Ameland. The cloud base was down to 300 feet and rain showers and spindrift obscured the windscreens of the Beaufighters as they ran in to make an immediate attack from the port beam. Two R.A.A.F. aircraft had to break away without seeing their targets and six of the others sustained damage from gunfire, but again attention was successfully drawn from the Torbeaus[2] which set one merchant ship ablaze and damaged one other. The concentrated fire from the Australians had also seriously damaged an escort vessel on the convoy's port flank, and this ship was last seen with a 15 degree list.

Bomber Command also entered into sea preparations by a greatly increased program of mining during the second quarter of 1944. Strategically the aims were to disrupt U-boat training in the Baltic; to prevent or delay the passage of U-boats to operational areas,[3] and to dislocate seaborne traffic and especially military supplies for Norway. Tactically the intention was to sow minefields which would guard the invasion area against enemy light warships and U-boats. Thus the 7,161 mines laid by Bomber Command in April, May and June 1944 were distributed not only in the routine Baltic and Biscay areas, but in the channels between Ushant and Brest, and the approaches to Morlaix, St Malo and Cherbourg in the west, and the Frisian coast, the Heligoland Bight, Danzig and Kiel to the east of the intended invasion area.

The main weight of this offensive was carried by Stirlings and Halifaxes of Nos. 3, 4 and 6 Groups, but on 9th-10th April 11 Lancasters of

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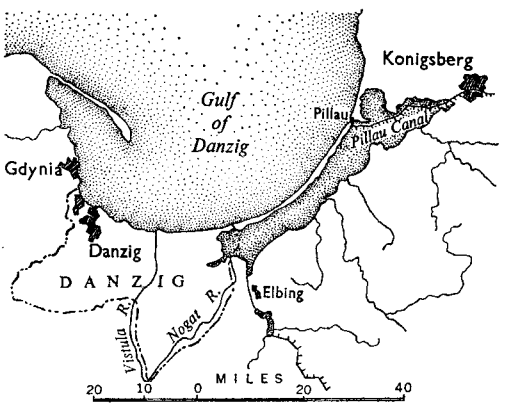
[1] F-O W. M. Barbour, 414380; 455 Sqn. Bank clerk; of Eagle Junction, Qld; b. Chinchilla, Qld, 26 Jul 1922. Killed in action 6 Jul 1944.

[2] Airmen were fond of elision and abbreviation to denote the differing functions of aircraft, and this was reflected in official documents—hence Flakbeau, Torbeau, Rockbeau. A similar expedient produced the Hurribomber, Kittybomber, Tiffybomber, etc.

[3] Nine U-boats were sunk during 1944 by mines laid by aircraft in the Baltic and Bay of Biscay.

No. 460 were in a special force which laid 450 mines in the Gulf of Danzig. For this very distant target, involving a round trip of nine hours, each Lancaster carried five mines, which for the first time were laid from high level. Enemy opposition was very strong and three R.A.A.F. aircraft were shot down and three others damaged, but the military result was significant as Danzig Bay was closed to traffic for 15 days.

Other sorties were made by No. 460 on 18th-19th April to the Pomeranian Bay and on 12th-13th May to the Heligoland Bight, each time without loss. The latter operation was in conjunction with the first mining sortie by Mosquito aircraft which were sent to block the Kiel canal. Flying Officer Macdonald[4] of No. 692 Squadron flew one of the minelayers and Squadron Leader A. S. Grant of No. 156 was chosen as navigator of one of the route markers and illuminators. After reaching Heligoland at an altitude of 10,000 feet, the tiny force turned south-eastwards in a shallow dive, and then due east for the last 14 miles run up to the target in a steeper dive down to 300 feet. All except one aircraft successfully dropped mines in the canal, which was closed for seven days after this operation. It was then partially reopened, but owing to losses was quickly closed again for another three days. Another equally difficult task was successfully accomplished on 9th-10th April when six Lancasters from Nos. 49 and 106 mined the Konigsberg-Pillau canal. This target lay nearly 1,000 miles from United Kingdom bases and the Lancasters had to locate the canal and fly along it only 150 feet from the ground. The waterway was only 54 yards wide, and until the mines were laid no evasive action was possible against the many light guns and dazzling searchlights which lined both banks, but Flying Officer Anderson[5] and Flying Officer Roantree[6] both succeeded in planting their mines in the canal.



Despite all the increasingly heavy demands on the resources of Bomber Command for attacks on invasion targets, the independent strategic offensive against Germany and her occupied territories did not entirely cease,

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[4] Sqn Ldr I. S. H. S. Macdonald, 402383. 51, 296, 1478 Flt and 692 Sqns RAF. Electroplater; of Carlingford, NSW; b. Manilla, NSW, 2 Jun 1916.

[5] F-Lt R. F. Anderson, DFC, 410291; 106 Sqn RAF. Cabinet maker; of Lara, Vic; b. Heathcote, Vic, 18 Jul 1917.

[6] F-Lt C. Roantree, DFC, 416789; 49 Sqn RAF. Advertising trainee; of Keswick, SA; b. Broken Hill, NSW, 14 Jan 1921.

and R.A.A.F. squadrons were dispatched on nine such raids, as shown in the accompanying table.[7]

Date	Target	Total Force		R.A.A.F.			Tons of bombs	Total missing	R.A.A.F. missing
		Dispatched	Attacked	Squadron	D	A			
April 20-21	Cologne	379	358	460	19	19	1,767	4	—
„ 22-23	Dusseldorf	596	567	460	19	18	2,150	30	1
„ 22-23	Brunswick	265	256	463	20	20	741	3	1
				467	16	16			
„ 24-25	Karlsruhe	637	598	460	15	15	2,171	20	—
				466	14	14			
„ 24-25	Munich	260	255	463	18	17	712	9	1
				467	15	15			
„ 26-27	Essen	493	471	460	25	25	1,878	5	1
May 21-22	Duisburg	532	488	460	21	21	2,220	29	1
				463	15	13			2
				467	16	15			1
„ 22-23	Dortmund	375	326	460	22	21	1,656	17	—
„ 22-23	Brunswick	235	211	463	14	14	613	14	—
				467	15	14			

The Cologne attack developed well despite the presence of thick cloud, and fires were soon burning in the centre of the city. Two Lancasters of No. 460 reported engagements with night fighters but the most desperate battle was forced on Flight Sergeant Cowell[8] of No. 15 whose aircraft had already been damaged by gunfire over Cologne. Early on his return route a single enemy aircraft attacked but was outwitted and then, with one engine and the rear turret out of action, Cowell had to beat off three more determined attacks before he crossed out over the French coast. Forty per cent of the tonnage of bombs carried to Cologne had been incendiaries, but this ratio was increased to 57 per cent two nights later when the target was Dusseldorf. The R.A.A.F. Lancaster and Halifax crews praised the clear pathfinder marking and vividly described a mass of fires raging over two or three square miles; later photographic reconnaissance of Dusseldorf showed that 28 industrial concerns had received damage. Of particular importance was a high level of destruction at two branches of the Rheinmetall steel combine, then the most important armaments works in Germany. It was, however, far from an easy operation and German fighters penetrated the bomber stream during the outward journey shooting down one aircraft from each R.A.A.F. squad-

[7] Some main-force bomber squadrons were also called upon to reinforce the effort of the special units which had for some years been active in delivering men, arms and equipment to the French Maquis. There was a great expansion of this work during the six months prior to the actual invasion, many of the deliveries taking place under cover of bombing raids.

[8] F-O J. E. Cowell, DFC, 421007; 15 Sqn RAF. Station hand; of Bedgerebong, NSW; b. Forbes, NSW, 6 Aug 1916.

ron, and damaging the Lancaster flown by Squadron Leader Willis[9] of No. 460 so badly that he dropped his bombs on Krefeld and prudently struggled home with one engine unserviceable, one fuel tank punctured, the mid-upper turret and hydraulic controls out of action, and his bomb-doors almost shot away. Several more aircraft were damaged by accurate ground-fire, and Squadron Leader Connolly[1] of No. 466 suffered a large hole torn in his port rudder-fin by a bomb released from another aircraft.

No. 5 Group was also out in force on 22nd-23rd April, thrusting beyond Dusseldorf to attack Brunswick. Heavy flak defences upset the pathfinder program, but despite this a good concentration was achieved on the main aiming-point and large fires enveloped the town. The incendiary technique was carried further on this raid, each R.A.A.F. aircraft dropping one 2,000-lb high-explosive bomb and 12 500-lb incendiary cluster bombs, which caused a tight ring of fires immediately after impact. Brunswick was particularly susceptible to this form of attack as a large proportion of its buildings were of timbered or half-timbered style, and the destruction achieved in industrial, business and residential areas was very great in relation to the weight of attack. The Australians were not unduly worried by fighters and the gun defences were swamped by the time the main force were over the target. This degree of success was not achieved, however, when a similar force returned a month later on 22nd-23rd May. Again cloud and gun defences led to scattered marking, but this time the bombing also failed to centre on prime objectives. All the R.A.A.F. Lancasters returned safely, but many were forced to dive away from well-controlled searchlights, several were damaged by flak and five crews of No. 467 had combats with night fighters.

The main force of Bomber Command was sent to Karlsruhe on 24th-25th April and once again Nos. 460 and 466 participated, together with many individual R.A.A.F. men from Nos. 1, 3 and 4 Groups. Weather conditions were again difficult with dense drifting layer cloud obscuring the target, but many Australians dived down into clear air to drop their loads, equally divided among high-explosive and incendiary bombs. These men had the satisfaction of seeing large fires out of control near the railway station and throughout the industrial area, and this section of the bomber stream met little opposition from fighters or gunfire.

At the same time Nos. 463 and 467 were well represented in a smaller force bombing Munich under almost ideal weather conditions. This was almost entirely a fire raid, no less a proportion than 663 of the total 712 tons of bombs being incendiaries, and, as at Brunswick, the predominantly timber buildings in the centre of the city were soon blazing and a smoke pall rose to 18,000 feet. Scarcely any building between the main railway station and the river escaped damage, and the scale of destruction was phenomenal in relation to the moderate force employed. Munich was a very important garrison town and six groups of barrack

[9] W Cdr A. V. Willis, DFC, DFM, 402940. 460 Sqn (comd 1944). Station overseer; of Inverell, NSW; b. Toorak, Vic, 15 Aug 1915.

[1] W Cdr H. W. Connolly, DFC, 402492. 76 and 78 Sqns RAF; comd 466 Sqn 1944. Clerk; of Seaforth, NSW; b. Balgowlah, NSW, 31 Mar 1918.

buildings received extensive damage. Again the defences were not unduly active, although several R.A.A.F. crews had fleeting engagements. The high offensive spirit of No. 5 Group, which consciously tried to make itself a *corps d'élite* within Bomber Command, was reflected by the conduct of Flying Officer Kennedy,[2] a bomb aimer of No. 467, who was injured by flak en route to Munich but who did not report his wounds until back at Waddington, although he had bombed successfully and assisted in the safe return of the Lancaster while himself suffering considerable pain.

This emphasis on incendiary attack for area raids, in contrast to the existing technique against tactical targets, was maintained on 26th-27th April, when nearly 500 aircraft bombed Essen in clear weather. The 25 Lancasters of No. 460 alone dropped 133 tons and many of the crews reported that it was the best raid in which they had taken part; with markers accurately placed they found no difficulty in adding to the conflagration which quickly sprang up round the Krupps works, where 91 large industrial buildings and many smaller installations housing laboratories and testing equipment, electric sub-stations, steam plant and pumps were all temporarily put out of action. It was a magnificent end to a week of strategic bombing carried through with casualties of only 3 per cent, in contrast to the crippling losses suffered during March.

Except for a small attack on the Berleit motor vehicle works at Lyon on 1st-2nd May, the R.A.A.F. squadrons concentrated on tactical targets until 21st-22nd May, when Ruhr targets were again bombed, partly for the intrinsic value of impeding German production, but with the important corollary of splitting enemy air defences between German industries and the French invasion area. That night Nos. 460, 463 and 467 all attacked Duisburg, causing especially heavy damage in the industrial suburb of Hoschfeld. The next night, while the Waddington squadrons went to Brunswick, No. 460 bombed Dortmund, adding considerably to the area laid waste by the heavy raids during 1943. All three attacks were made in bad weather against increased enemy defences, but although the loss rate rose to over 5 per cent, this reaction was, if anything, reassuring to the Allied strategic plans, as the assault in Normandy was only a fortnight away and there had obviously been by no means a total transfer of *Luftwaffe* strength to the area of vital importance.

[2] F-Lt J. A. C. Kennedy, DFC, 409001. 467 and 463 Sqns. Bank clerk; of Melbourne; b. Mount Gambier, SA, 30 Nov 1911.

CHAPTER 3

THE INVASION OF ITALY

BY the middle of August 1943 the Allies were able, in the Mediterranean at least, to contemplate an offensive stage of strategy. The second phase of the original British conception—elimination of Italian colonial power—had been achieved three months earlier; and now the conquest of Sicily had ensured safe passage throughout the Mediterranean and greatly eased the Allied shortage of sea transport which had threatened to restrict offensive planning. Since the U-boat campaign in the North Atlantic had fallen away, it seemed probable that, with new ship construction outpacing losses, and with a gain of many millions of tons annually because of the elimination of the Cape of Good Hope route, the Allied resources for a final prosecution of the European war would increase rapidly. Nine months must elapse, however, before Allied forces could be collected and trained for the invasion of north-west France, and although one of the intermediate objectives set at Casablanca (the defeat of the U-boat), had been accomplished, the corollary—attrition of German ability to wage war—had not yet achieved outstanding results. Therefore, with large battle-tested ground, naval and air forces occupying strategic positions in the Mediterranean, it was natural to seek there further immediate objectives which would preoccupy and weaken the enemy as much as possible.

Two days before Messina fell, the QUADRANT conference had formally endorsed the OVERLORD plan for 1944, and this led to the withdrawal of many of the Allied ground troops and naval vessels and some of the air forces assembled for the conquest of Sicily. In the new phase, although it was an offensive one, the Mediterranean could expect only a minor allocation of troops and equipment. Thus, with reduced means and no long-settled plan of operations because of the differing emphasis which American and British Chiefs of Staff placed on the "soft under-belly of the Axis", the actual degree of pressure which could be achieved was still problematical.

General Eisenhower had been requested to plan, as a matter of urgency, operations calculated to eliminate Italy from the war and to contain the maximum number of enemy divisions. Of these plans, however, the Combined Chiefs of Staff would choose only the one most likely to prevent in the most economical manner any aggregation of German reserves during the coming winter which might imperil the success of OVERLORD. Several ventures were discussed by Eisenhower's planning section, including assaults against Sardinia and Corsica, or landings on the mainland either in Calabria or Apulia. Eisenhower considered that none of these plans would necessarily force the Germans to dispose large forces in defence, but until the outcome of the Sicilian campaign was known they were the most that he could safely recommend

as feasible with the forces which would still be available to him. Theoretically, as the British were consistently advocating, it would be far more profitable to strike in strength not in the isolated islands, and not in the heel or toe of Italy which could be easily sealed off by the enemy, but along the exposed shoreline of the leg of Italy, to secure first Naples and later Rome. These were objectives which the Germans must defend, and, to gain them would not only eliminate Italy from the war but automatically provide useful air bases for strategic operations against Germany.

The swift successes gained during the Sicilian campaign caused Eisenhower, previously non-committal in the face of Mr Churchill's exhortations to plan boldly for the capture of Rome, to incline to the British view. He began planning an amphibious operation aimed at capturing Naples, which would then be the essential supply port for an advance up the Italian peninsula. By mid-July the Combined Chiefs of Staff accepted this concept, but up to the 24th, the eve of Mussolini's downfall, the Americans opposed any postponement of the plans for moving forces away from the Mediterranean, although Eisenhower was basing his plan on the retention of troops, assault-vessels and aircraft.

These tentative plans received a great impetus from the political and military advantages implicit in the possibility of a quick settlement with the moderate government which assumed power in Italy on 25th July. Plans could be made on the assumption of non-interference or actual help by the numerically superior Italian forces against their present allies. Sardinia and Corsica in either event would probably fall of their own weight once isolated, and Eisenhower thus had to face primarily only the German divisions then disposed in Italy. While negotiations behind the scenes were conducted between Allied and Italian envoys, Eisenhower rapidly accelerated his plans. He recognised the desirability of an assault in the Naples area at a much earlier date than he had intended, although it would have to be effected with whatever forces he could muster rather than those which he would have desired. On 16th August he informed the Combined Chiefs of Staff that he proposed to secure a bridgehead in Calabria at the beginning of September, as the prerequisite for the main assault (AVALANCHE) in the Naples area.

The choice of Salerno as the touching down place for AVALANCHE reflects a conservative spirit among the Allied planners only too natural when the political and supply situations were so uncertain. A landing in the Gulf of Gaeta north of Naples, to force a precipitate enemy withdrawal from that key port offered the best chance of so quickly influencing the military situation in Italy that the Germans might withdraw to positions covering the Po Valley. Eisenhower on the other hand was most reluctant to risk a major setback. From the apparently large number of divisions in the theatre only a few of the experienced ones could be employed for AVALANCHE; the landing-craft position was critical because of impending withdrawals, and therefore the build-up in Italy might be too slow in the face of a full enemy counter-attack. Above all he considered that a crucial requirement of any assault was effective air support



(*Imperial War Museum*)

Chiefs of the Allied forces meet in London on 1st February 1944. *Left to right*: Front row: Air Chief Marshal Sir Arthur Tedder (Deputy Supreme Commander); General Dwight D. Eisenhower (Supreme Commander); General Sir Bernard Montgomery (British Army group). Back row: Lieut-General Omar Bradley (U.S. Army group); Admiral Sir Bertram Ramsay (Naval Commander-in-Chief); Air Chief Marshal Sir Trafford Leigh-Mallory (Air Commander-in-Chief); Lieut-General Walter Bedell Smith (Chief of Staff).



(R.A.A.F.)

The officers' mess of No. 461 (Sunderland) Squadron at Pembroke Dock, April 1944.



(Sport and General, London)

Sorting mail from Australia at R.A.A.F. Overseas Headquarters London for delivery to air force stations in the United Kingdom.

and protection of the bridgehead, which virtually restricted the initial entry to an area of Italy within the radius of action of the British Spitfire squadrons which formed a large part of his fighter forces. Thus the invasion plan assumed an air of "safety first". The Calabria assault would secure a foothold and ensure control of the Strait of Messina; it would actively engage enemy forces which could not then oppose the force landing at Salerno. Once ashore at Salerno the main force should seize Montecorvino airfield and then, with increasing air support, first link up with the Calabrian divisions and then turn northwards for a frontal attack on Naples and the Foggia airfields.

Even for this limited objective Eisenhower wished to ensure heavily against enemy interference by a prodigious use of air power. It was believed that there were enemy units aggregating 600 fighters and 400 bombers which might oppose the landings, although the reaction of the Italian Air Force was problematical. Against this force the Allies had a total force of 4,000 aircraft which could be brought to bear on southern Italy, but Eisenhower continued to assess the threat to the assault forces as "extremely serious". His fighter forces could maintain from Sicilian airfields a continuous patrol of 36 aircraft over the beach-head and there would be additional help from a British carrier force whose Seafires could, for the first three days of the operation, contribute a further 22 aircraft to the continuous daylight patrol. Despite the experience of Sicily, Eisenhower was not convinced that this was sufficient protection against potential enemy attack and he decided it was essential to limit interference by intensive attacks on enemy airfields for at least three weeks before the amphibious landing. To this end he applied successively for short-term loans of several groups of Fortresses, three groups of Liberators,[1] and four groups of medium bombers from the Eighth Air Force in Britain, but all these requests were refused as they would have retarded development of the combined bombing offensive. Attempts to secure more P-38 (Lightning) fighters whose superior range made them especially desirable for the Salerno venture also failed. North-West African Air Forces, however, at this time fully absorbed units of the Ninth Air Force already on loan; and the Canadian wing of three Wellington squadrons (Nos. 420, 424, 425 R.C.A.F.) was permitted to remain in the Mediterranean although it too was urgently required in Britain. The only new air strength which arrived in time for the Italian campaign was a large force of gliders including 60 British Horsas.

Whatever doubts might have existed as to the capability of the Anglo-American air units to achieve in time and space the tasks requisite to full success for AVALANCHE, they formed a large and spectacular force. Australian participation in air fighting in this theatre had reached its relative peak by mid-1942 when approximately 3,000 Australian airmen were actively engaged in what was then a comparatively modest and almost entirely British force. It was also a relative peak with regard

[1] These were already temporarily in the Mediterranean having undertaken a raid against Rumanian oil targets at Ploesti.

to the distribution of Australians overseas, for on 1st July 1942 there were only some 4,000 serving in Britain. When Messina was captured, however, and the invasion of Italy was imminent, Australian participation had fallen to a minute proportion of the force available in the Mediterranean. The total air forces had expanded at least four times in size and more in striking power, whereas (although Australian squadrons had grown in number from five to seven) the actual number of Australian airmen in the Mediterranean stood practically unchanged at 3,000, with a further sprinkling in the remote sub-commands of the Middle East. Casualties, repatriation and diversion to other theatres of war, especially South-East Asia, where over 500 Australians were serving, had cancelled out Australian reinforcements, which now arrived in the Middle East chiefly as crews or individuals from operational training units in the United Kingdom. During the same period the number of Australians in Great Britain had risen, despite heavier casualties, to over 10,000, so that it now enjoyed a superiority of 10 to 3 over the Mediterranean deployment.[2] In these circumstances the Australian part in air fighting could only be episodic, with the contribution of both individuals and squadrons deeply submerged in the far heavier and more numerous operations required for the various strategic and tactical air campaigns.

This relatively small force of Australian airmen in the Mediterranean was widely scattered both geographically and functionally. The intention of the Australian Government was to achieve a compact national force overseas. It had not been, nor was it to become, possible to achieve this ideal because operational requirements continually stood in the way, and at the same time the somewhat ill-matched Australian contingent could not in any event be brought together into a distinctive formation. This experience may be contrasted with that of the South African Air Force, which disposed most of its forces in the Mediterranean, and had already one light-bomber and one fighter wing plus several independent squadrons concentrated in Desert Air Force.[3] The seven Australian squadrons could not be brought together in this fashion and in August 1943 were based

(*a*) Nos. 3 and 450 Squadrons (Kittyhawk fighter-bombers) at Agnone in Sicily as part of No. 239 Wing of Desert Air Force.
(*b*) No. 458 Squadron (Wellington torpedo bombers) at Protville in Tunisia as part of No. 328 Wing of North-West African Coastal Air Force.
(*c*) No. 459 Squadron (Hudsons) at Gambut as part of No. 235 General Reconnaissance Wing of No. 201 Naval Cooperation Group.
(*d*) No. 454 Squadron (Baltimores) at Amiriya as part of No. 238 Wing of No. 201 Naval Cooperation Group.
(*e*) No. 451 Squadron (Hurricanes) at Idku as part of No. 219 Group of Air Defence Eastern Mediterranean.
(*f*) No. 462 Squadron (Halifaxes) at Hosc Raui as part of No. 240 Wing under the operational control of the American Ninth Air Force.

Australian squadrons were thus undertaking six different tasks with six different types of aircraft, and although, broadly speaking, the Kittyhawk,

[2] In August 1943 there were 9 RAAF squadrons in Great Britain compared with 7 in the Middle East.
[3] Later in the war the SAAF also formed a heavy-bomber wing of two Liberator squadrons.

Wellington and Halifax units were all applying themselves to the main campaign in the central Mediterranean they did so from widely-separated bases with no real sense of unity.

An even greater weakness in the disposition of Australian units was the fact that few of them were homogenous. Theoretically from the 3,000 Australians in the Mediterranean seven truly Australian squadrons might be maintained, but as at least 45 per cent of the men were aircrew there was in any case a superabundance of aircrew and a grave shortage of ground staff. Only the three single-engined fighter squadrons (Nos. 3, 450 and 451) were wholly national units; each had arrived in the Middle East with almost complete ground crews, which had been fairly easily maintained—and there was never any shortage of suitable Australian fighter pilots. The other four units had very varying complements both of aircrew and ground staff.

No. 458 Squadron had arrived in the Middle East during 1942 with a fairly adequate proportion of R.A.A.F. crews, but had split up, and, when it had later re-formed for anti-shipping instead of normal bombing duties, suitable Australian aircrews were difficult to find and many of the ground staff had already been absorbed by other units. Nos. 454, 459 and 462 had all been formed with R.A.F. ground crews and, with the exception of the engine and airframe fitter categories of which there was a significant surplus, only a few Australians could be posted to them. Thus the anomaly arose that some 250 men or 16 per cent of the total ground staff available could not be employed on *Article XV*[4] squadrons and were distributed among other units.[5] This ground staff position although unfortunate was understandable because Australia, beset by complex manpower difficulties in the Pacific, had virtually stopped sending ground staff overseas in December 1941.

Less easily reconciled at first sight was the situation that, with roughly double the required number of aircrew members in the theatre, none except the single-engined squadrons could be kept even reasonably up to strength with Australian members. Some of the apparent surplus were fighter pilots for whom obviously there was no room on the well-filled *Article XV* units; some were specialised aircrew such as night fighters, transport crews or medium-bomber crews for which there was no appropriate Australian unit; many had become so tied by the crewing system or so identified with geographical sub-commands that they could not easily be withdrawn for posting to Australian units; many preferred to apply for postings of their own choice rather than according to a national formula. Moreover, as most of the units were backed by operational

[4] *Article XV* provided that Canadian, Australian and New Zealand aircrew trained under the EATS would serve in Canadian, Australian or New Zealand squadrons, respectively, within the RAF.

[5] This situation arose because sufficient fitters had been sent for training in the Middle East during 1941 in anticipation of the formation of *Article XV* squadrons. However, Nos. 3, 450 and 451 already had these tradesmen and No. 458 brought theirs from the U.K. The remaining squadrons, Nos. 454, 459 and 462, could absorb only a minority of the fitters available—No. 462 in particular requiring men skilled on Halifax aircraft of which Australian tradesmen had no experience.

training units not based in the Mediterranean, maintenance of full Australian crewing depended largely on the correct posting action by outside authorities, and this was never achieved. There were special difficulties attending any change of aircraft or role because often the decision was made before changes could be made along the training pipe-line to ensure that an adequate flow of Australians would be assured.

The small liaison office staff in Cairo could recommend and often secure the posting of individual Australians to *Article XV* units, but time and space made effective policing difficult. Mediterranean Air Command was now so large and complex that there were inevitably instances of genuine mistakes and also of calculated diversion of aircrew by local commanders, which further complicated the problem of keeping Australian squadrons up to strength. Throughout 1943 Overseas Headquarters in London had been gravely disappointed by the low percentage of Australian crews serving with Nos. 458 and 462 Squadrons, although constantly assured that suitable crews were regularly dispatched from Britain. Finally, on 5th August 1943, the matter was raised at the weekly aircrew allocation meeting in London, when both Canada and Australia alleged that Dominion crews expressly sent out to North Africa for *Article XV* units were apparently being diverted upon arrival to other squadrons. The Director-General of Postings undertook to bring pressure on the Mediterranean Air Command to ensure compliance with the requirements of both Dominions.

In fact the state of No. 458 Squadron R.A.A.F., which was described at the 19th August aircrew allocation meeting as "90 per cent Canadian" (an exaggeration), amply illustrates some of the prevalent difficulties. It had gone to the Middle East as a medium-bomber squadron backed by No. 21 Operational Training Unit at Moreton-in-the-Marsh. When reconstituted in October 1942 in No. 201 Group it continued to receive crews from the same source. The Malta detachment began torpedo bombing, and absorbed crews of Nos. 69 and 38 Squadrons, several months before the unit was officially redesignated in May 1943 as a torpedo-bomber squadron, and arrangements made for it to be backed by No. 7 Operational Training Unit. Overseas Headquarters R.A.A.F. was not officially told of this until August, as a result of its complaint concerning crewing. No. 7 Operational Training Unit had by that time not produced any Australian crews, and those from No. 21 Operational Training Unit, although Australian and posted to No. 458, had been reallocated as bombing crews to units of No. 205 Group when they arrived in North Africa. Thus Mediterranean Allied Coastal Air Force[6] had no option but to keep No. 458 filled with torpedo-bomber crews of any nationality which might be available.

The leakage of Australian crews may here be attributed to several authorities failing to cooperate or advise each other of changed needs

[6] Many of the formations described as "North African" in July 1943 were later redesignated "Mediterranean Allied" forces, when operations extended beyond North Africa and more predominantly became the combined effort of the two main Allies in this theatre.

and circumstances, but the situation concerning No. 462 Squadron was somewhat different. The Director-General of Postings at Air Ministry assured Overseas Headquarters R.A.A.F. that suitable crews were dispatched to the Middle East. In response to a signal from the Air Ministry strongly stressing Australian concern at the state of No. 462, Headquarters R.A.F. Middle East on 18th August 1943 admitted that only 19 of the squadron's aircrew members were Australian but denied responsibility for the position. R.A.F.M.E. asserted that it had requested a "flow of Australian reinforcing Halifax crews in order to increase Australian element in the squadron" as early as December 1942; that on 29th March 1943 it had informed the Air Ministry that only six Australians had then arrived and had then requested four complete Australian crews each month; that the "sole response to these requests have been receipt here of 2 repeat 2 crews only with Australian connections". These two viewpoints could in no sense be made to match. It is possible that some basic Wellington crews suitable for local conversion to Halifax crews had indeed been sent to the Middle East and had been absorbed en route by No. 205 Group, but this instance even more than the circumstances of No. 458 Squadron showed plainly that, unless Australia had more effective means of policing her national crewing policy, she was not likely to achieve it.

The comparative weakness of the *Article XV* squadrons in the Mediterranean had some compensation in that the scattered individuals were able to engage in a far wider range of operational experience. Up to squadron level they also enjoyed far greater possibilities of attaining junior command experience, a factor at times very evident among those who preferred voluntary dispersal on R.A.F. squadrons. In the long term, however, failure to group Australians together militated against the chances of men gaining administrative and operational experience of lasting professional worth. Moreover, as air operations continually expanded in scope and extent, individual achievement receded further and further from the early position when it may have at times been vital to success in local battles; the individual was now deeply submerged in the general pattern of air pressure. There is thus no easy method by which the work of up to 1,000 aircrew, representing virtually two-thirds of the Australian aircrew present in the Mediterranean at any one time, can be described. At best their relatively small contribution must be adduced from a general description of events.

As in the period between the Tunisian and Sicilian campaigns, there was no real slackening of air effort after the fall of Messina on 18th August. The general task of neutralising enemy air bases by bombardment continued and the aim was now to deprive him first of airfields in Calabria and Apulia, and later to drive him from the Naples and Foggia fields which were within close striking range of Salerno. Most of these targets had already been severely hit during operations in support of HUSKY (invasion of Sicily) but on 25th August American Flying

Fortresses (B-17's) made a heavy raid against four of the Foggia satellite airfields and later also caused severe damage at Capua and Viterbo. Liberators of the Ninth Air Force attacked Bari, and on a smaller scale Halifaxes of No. 462 bombed Grottaglie, the airfield directly responsible for the defence of the naval base of Taranto. Enemy air reaction to these raids was only moderate except at Foggia, and its own weak raids against Sicilian and North African ports and convoys during this period were mounted from bases in southern France or central Italy, affording fairly clear indications that the enemy would be able to use the southern airfields at best as advanced bases.

With only a limited time before the amphibious assaults were to take place and because the problems of temporarily denying the enemy his airfields would not be large, the bulk of North-West African Strategic Air Force effort was thrown against enemy communications. Irrespective of Italian reaction, General Eisenhower feared that there were sufficient German forces in southern Italy to repulse the invaders, whose rate of build-up was severely limited by the shortage of suitable landing-craft. Accordingly air power was required to hamper in advance the enemy's ability to bring more troops and equipment to bear on the threatened area than could the Allies. In practice this task became one of halting enemy rail traffic during the critical period. In peacetime coastal shipping performed the bulk of Italy's transport requirements, the railways being principally concerned with passenger traffic. The war situation now required the enemy to place great reliance on these railways, which ran through significant bottlenecks at Rome, Naples and Foggia, and which in southern Italy at least had few marshalling yards and maintenance facilities.

Within the fortnight preceding 3rd September American heavy bombers alone flew nearly 1,000 sorties against rail communications, with special emphasis on Foggia, Pisa, Sulmona, Terni, Bologna and Pescara. Sometimes, as at Foggia on 19th August, the daylight raid was followed by further attack by night-flying Wellingtons. The Wellingtons for the most part concentrated on the more southerly targets and made several successful attacks against Salerno, Torre Annunziata and Battipaglia, while No. 462 made small-scale raids against Crotone. Medium and fighter-bombers also made many attacks against communication facilities within their range (principally in Calabria). The total air effort expended to halt traffic south of Naples, and thus materially aid both the projected Allied landings, amounted to 4,500 sorties in which 6,500 tons of bombs were dropped. As with the airfield attacks this aim was largely successful even though it was recognised that the suspension of enemy movements was only temporary and would have to be exploited quickly. There was also no effective means of preventing the resourceful Germans from making partial rail movements under cover of darkness.

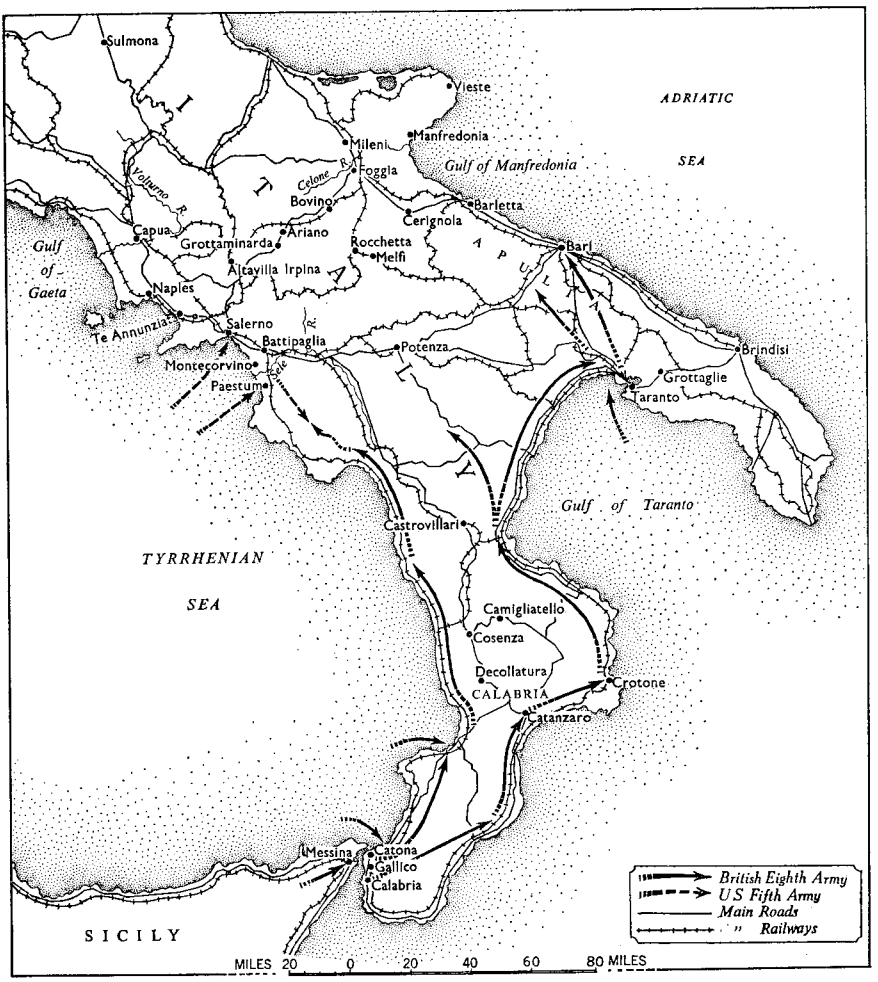
Meanwhile the fighters, fighter-bombers and light bombers of North-West African Tactical Air Force were conducting subsidiary attacks against minor targets along the Italian coastline, but their principal task was

to re-site, reorganise, re-train and bring themselves to a peak of readiness for direct protection of the landings. No. 239 Wing of Desert Air Force, which provided the largest aggregation of Australian effort, remained based at Agnone, and its share in the interdiction campaign was chiefly to escort Mitchell medium bombers in attacks on towns and railway stations in the extreme toe of Italy. Squadron Leader B. A. Eaton, who had commanded No. 3 Squadron R.A.A.F. from April to June but had to relinquish his command because of illness, returned to the squadron in August 1943, and led the Kittyhawks on several occasions towards the end of the Sicilian campaign. Both he and Squadron Leader J. P. Bartle, who commanded No. 450 Squadron R.A.A.F., did much by their personal example to inspire both the air and ground crews. Some doubts had recently been expressed in Cairo by the Australian liaison officer as to the wisdom of keeping No. 450 in the line without proper rest or relief, because he feared that both the health and efficiency especially of the ground staff would suffer. However, although these fears were by no means unfounded and the cumulative effects of almost 18 months constant operations under mobile and uncomfortable conditions were apparent among the Australian ground staff, they nevertheless maintained a very high standard.

The invasion of Calabria duly took place in the early hours of 3rd September 1943, the fourth anniversary of Britain's declaration of war. On the same day a secret armistice between the Allies and Italy was signed in Sicily, and was to be made public just before the main landings at Salerno. The invading force was XIII Corps of the Eighth British Army, the 1st Canadian Division going ashore at Reggio di Calabria and the 5th Division at Gallico and Catona. A heavy naval bombardment and fire from a large but motley collection of guns in the Messina area completed the demoralisation of the enemy coastal defences, already begun by air attack, and there was practically no resistance as the troops went ashore. Nor was there any heavy enemy air attack, and only some 40 fighter-bomber sorties were flown against the beach-head, although the Germans sent up an estimated 100 fighter sorties, either as escorts for the fighter-bombers or in defence of their own Calabrian bases. Desert Air Force which had been warned that its first task was to protect XIII Corps found it had little to do. On 3rd September the two Australian Kittyhawk squadrons flew 47 out of a total of 70 wing sorties, principally as escort to medium bombers attacking Cosenza, Decollatura and Camigliatello on the western coast road. It was soon obvious that defence duties would be light and that the fighter-bombers could switch to direct support of the army, but again opportunities were limited. There were no pitched battles, no desperate rearguards to be attacked from the air, as XIII Corps, impeded chiefly by demolitions, began to push cautiously northwards.

For the next week the Kittyhawks operated independently, answering specific calls for close support and driving all enemy transport vehicles off the roads during daylight hours. Really worthwhile targets were

very scarce and enemy opposition in the air was negligible, so that, although they flew a further 144 sorties during this period, the Australians were able to claim only the destruction of a few enemy trucks. Their only loss came on 5th September when, because of ground fire,



Warrant Officer Percival[7] crash-landed on the beach at the tip of the peninsula. The British advance on the ground continued throughout the first five days and was assisted along the west coast by small leap-frog landings. However, with still no real contact with the enemy, bombers were again sent against traffic centres in the north of Calabria with the

[7] W-O R. E. Percival, 402671; 3 Sqn. Estate agent; of Strathfield, NSW; b. Strathfield, 9 Dec 1920. Killed in action 5 Sep 1943.

dual purpose of impeding the enemy withdrawal from the toe and of prohibiting other movements towards Salerno.

Meanwhile preparations for the AVALANCHE landing were completed, and the convoys from Oran, Bizerta, Tripoli and Palermo were all converging on Salerno on 8th September, when XIII Corps neared Catanzaro. Heavy attacks on airfields were made in the last two days: by Fortresses of North-West African Strategic Air Force and Liberators of the Ninth Air Force against Foggia, and by Wellingtons against Viterbo. Day and night attacks were also continued against communication targets and, on the 8th, Fortresses struck an effective blow at Frascati, where Field Marshal Kesselring's headquarters was severely damaged. The stage had thus been set as favourably as possible for the invaders. The only hitch that had arisen concerned the proposed employment of the 82nd American Airborne Division. Originally it was to be dropped at Capua as a diversion for AVALANCHE, but, as the political negotiations with Italy proceeded, the Italians requested that a division be dropped at Rome when the armistice was made public to safeguard the capital against possible reprisals and as a focus for Italian counter-action against their late allies. The advantages of this daring venture were obvious, but on 8th September the Italians advised that they could no longer guarantee the proposed landing areas, so that the scheme had to be abandoned at a time when it was too late to restore the original plan.

Germany had been by no means content to permit a weak ally to collapse and threaten her own position. From the moment of Mussolini's downfall Hitler's advisers expected Italy to make clandestine peace overtures, and every sign of defection was watched while the Germans themselves prepared counter plans. On 22nd August, despite Italian protests, the *Tenth German Army* was set up as an authority independent of the *Commando Supremo*. The Germans were ready on the issue of a single code word to disarm all possibly unfriendly Italian units and to salvage as much as possible militarily from an Italian collapse. There were indeed divided opinions as to what the best strategy would be, but it was tentatively concluded that, in the face of large-scale Allied invasion, Sardinia and Corsica would be abandoned and a fighting retreat up the peninsula undertaken. Kesselring was fully aware that considerations of fighter cover and the need quickly to capture a major port would govern Allied plans, and early decided that Naples would be the initial target. Accordingly the *Tenth Army* disposed *XIV Panzer Corps* at Caserta, with its subordinate divisions at Gaeta (*15th Panzer Grenadiers*), Naples (*Hermann Goering*) and Salerno (*16th Panzer*); *76 Panzer Corps* at Castrovillari with one division (*29th Panzer Grenadiers*) opposite Messina and one in the Catanzaro area (*26th Panzer*); and *1st Paratroop Division* with elements in Naples, Castrovillari, Taranto and Bari. Defence of the Adriatic coast and of other less obviously threatened areas was left to the Italians, the *Tenth Army* striving to keep itself as a strategic reserve which could quickly be thrown against the main assault.

The invasion of Calabria brought a feeling of relief to the enemy for it not only tied up at least two divisions of the Eighth Army on a narrow mountainous peninsula where it could easily be delayed by road-blocks and weak rearguards, but also made certain that the main blow would fall near Naples, because, had the intended invasion been farther north, the Calabrian bridgehead would have had little purpose. Accordingly, on 2nd September as soon as the assault fleet began concentrating, *76 Corps* was ordered to fall back as quickly as possible consonant with denying free progress to XIII Corps along the west coast road. Late on 8th September when the Italian surrender became known, the *26th Panzer Division,* which had held the Catanzaro bottleneck while the *29th Panzer Grenadiers* sped north, was also ordered to withdraw by night towards Naples.

When, early on 9th September, Allied forces landed on a broad front in Salerno Bay, both the X British Corps in the north and the VI American Corps in the south were initially opposed by the *16th Panzer Division.* The *Hermann Goering Division* began to move south from Naples and the Germans hoped that, as soon as elements of *76 Corps* arrived from Calabria, the bridgehead could be overwhelmed. At the same time the German Air Force which had been carefully conserved for this emergency made an all-out effort against the assault force. Close-support aircraft could still use some of the Foggia airfields, and for almost a week they averaged two sorties per day with each serviceable aircraft. The bomber force in north Italy and southern France flew approximately 250 sorties against the beach-head during the first 48 hours, the highest rate of effort achieved since the Malta raids of 1942. They operated with two new weapons—a glider-bomb and a radio-controlled bomb which sank the Italian battleship *Roma* on its way to surrender, and also sank or damaged several Allied naval ships off Salerno.

Despite their strenuous efforts the German Air Force achieved relatively little, because American and British fighters flew approximately 800 sorties on each of the first few days, and, although they could not entirely dominate the air, the Allied fighters frustrated or blunted many of the enemy attacks. The Fifth Army overran Montecorvino airfield early in the fighting, but it could not be used by Allied aircraft because it remained under enemy fire. Emergency airfields were hurriedly constructed at Paestum, Sele, Capaccio, Tusciano and Asa within the bridgehead but they came into use very slowly, and practically all air defence and support had to be maintained from Sicilian fields. Meanwhile, from 9th September onwards, bombers of both the Tactical and Strategic Air Forces attempted to isolate the battlefield by further attacks on airfields and communications, while a proportion of fighters sent to guard the bridgehead also carried bombs so that they could answer local requests for close support.

The very large Allied air effort, amounting in all to some 1,300 sorties daily in support of the Salerno beach-head, approximately five times that of the enemy, could not automatically bring success. It failed to prevent

enemy air activity although it certainly limited its effectiveness. Nor could it prohibit all enemy movement, although the slowness with which *29th Panzer Grenadiers* and *26th Panzers* moved into counter-attack positions was at least partly attributable to the air interdiction campaign.[8] By 12th September the enemy had nevertheless managed to concentrate the bulk of the *Tenth Army* forces against the Salerno bridgehead and began a fierce counter-attack down the valley of the Sele which eventually drove to within three-quarters of a mile of the shore.

During the five days leading up to the crisis at Salerno there was practically no fighting farther south. The Eighth Army continued to push up the west coast road, effectively screened by the Allied air operations mounted specifically for the Salerno action, and with more than ample close support from Desert Air Force. On 9th September the British battleship *Howe* and four cruisers had carried the 1st British Airborne Division to Taranto where there were few Germans and literally no opposition.[9] Patrols of this division occupied Brindisi on the 11th and Bari on 14th September, thus placing the heel of Italy securely in Allied hands. This quick success increased the chances of a swift drive against the Foggia airfields, still threatening AVALANCHE, and also afforded advanced airfields on Apulia which might compensate for the Allied failure to base some of their aircraft in the Salerno beach-head. Thus as early as 11th September the "A" maintenance parties of Nos. 3 and 112 Squadrons of No. 239 Wing were ordered to move from Agnone to Syracuse to form part of the next convoy to Taranto. On the 13th an emergency wing headquarters party flew direct to Grottaglie airfield where the Italians were sympathetic but impotent, as the Germans had taken all transport vehicles and had destroyed everything that had not already been damaged by Allied bombing. Next day Eaton led 12 Kittyhawks of No. 3 from Agnone to Catania where they made rendezvous with Dakota aircraft carrying a small ground party and essential supplies, which were escorted to Grottaglie.

This partial move of No. 239 Wing came at a time when the situation at Salerno was most critical and could be saved only by the most energetic action. Three airborne missions were made during the two nights 13th-14th and 14th-15th September to send aid to threatened parts of the Allied perimeter, and at the same time all Allied strategic and tactical bombers were directed against roads, dumps and enemy troop concentrations in the immediate rear of the beach-head area, raining some 3,000 tons of bombs into the enemy support areas during the three days of the German attack. Although this weight of bombing could not prevent the nearly-successful German drive down the Sele Valley on

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[8] General von Vietinghoff, C-in-C *Tenth Army*, attributed delays to logistic miscalculations which left the divisions in Calabria without sufficient fuel for emergency moves.

[9] Clause 7 of the "Short Instrument of Surrender" guaranteed "free use by the Allies of all airfields and naval ports in Italian territory, regardless of the rate of evacuation of the Italian territory by the German forces". In general the Italians were very willing to honour this clause, but they were usually easily deterred by any forceful German element in the vicinity, and throughout Italy the Germans seized transport and supply facilities, after which the Italian Army dispersed of its own accord.

14th September, it did rob it of much of its force. Once this most dangerous attack had been turned back, chiefly by naval and artillery fire assisted by strafing and bombing from the air, the Germans then found that the cumulative effects of the air bombardment prevented them from regrouping for a fresh assault which had been ordered for the early morning of 16th September. An enemy account relates that roads were so jammed that guiding parties lost their way, artillery observers failed to find their infantry units, and tanks and artillery, combed from all other German formations in an attempt to counter the marked Allied material superiority in gunfire, could not reach their assembly areas at the correct times. The final enemy attacks on the 16th thus virtually collapsed even before they had begun. With the Allied position at Salerno stabilised and the Eighth Army making accelerated progress northwards, the Germans had little choice except to break off the battle, pivot north-eastward and resume their initial strategy of a fighting withdrawal up the peninsula, holding tenaciously to each defensive position.

Many individual Australians played minor roles in the all-out air attack which was decisive in breaking up the German counter-attack and relieving the critical position at Salerno, but at least two-thirds of the sorties and an even greater proportion of the weight of bombing attack was contributed by American air forces.

The spirit with which all units met the emergency may perhaps best be illustrated by the participation of No. 3 Squadron. As described above, it had hurriedly transferred to the heavily-damaged airfield of Grottaglie on the very morning when the crisis was at its height. Immediately on landing all members of the skeleton party, cooks and pilots as well as fitters, riggers and armourers, helped to unload the Dakotas and to refuel, bomb and arm the Kittyhawks. Wheelbarrows were found, loaded with ammunition or bombs and trundled across to where the fighters stood; drums of petrol were manhandled into position, and as there was no power pump available each aircraft was laboriously refuelled by hand. Towards evening No. 3, the first complete squadron to attack from a mainland airfield, bombed and strafed a packed mass of vehicles moving westward between Potenza and Postiglione. The material weight of this attack from the rear was insignificant, but, coming on top of the main air assault, it posed a threat which still further whittled away the enemy's freedom of movement during daylight hours. During the next three days roads and railways around Avellino in the west and Cerignola, Barletta and Foggia in the east were attacked as frequently as possible, the Australians alone contributing 87 sorties. Meanwhile Grottaglie was supplied almost entirely by air (62 Dakota transport flights on the 15th and 130 on the 16th) while elements of the remaining four squadrons of No. 239 Wing were also flown in.

There had been little enemy air opposition to the flights from Grottaglie, but as soon as the land position was stabilised both the Strategic and Tactical Air Forces turned against enemy airfields on 17th September to eliminate once and for all the possibility of heavy *Luftwaffe* interference

in southern Italy. Day and night bombers flew 600 sorties in 48 hours against Foggia, Viterbo and Rome. No. 3 Squadron attacked two of the Foggia satellites on the 17th and reported that bombs fell among dispersed aircraft. Anti-aircraft fire around the airfields was very intense and the Australians lost a Kittyhawk but its pilot, Flight Sergeant Collier,[1] managed to reach open country south of Manfredonia and then crash-landed on a beach. He was only slightly wounded and, after nine adventurous days during which his own audacity and quick wits and, at times, active cooperation from Italian civilians and officials, kept him out of enemy hands, he eventually joined the advancing British forces.

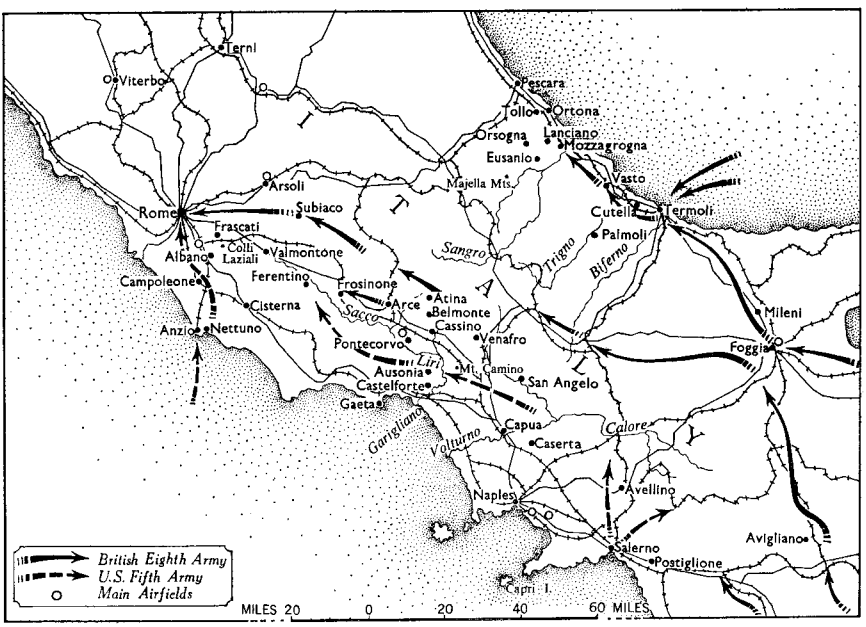
The air raids against Foggia, together with the implied threat of the Allied ground advance, forced the enemy to withdraw even fighters and fighter-bombers northward to the Rome and Viterbo airfields from which they could no longer seriously affect the land battle. On the other hand No. 239 Wing was again free to harass enemy rail and road communications. On 18th September Nos. 3 and 112 Squadrons were ordered to stand by for a move to Brindisi, but this order was cancelled, and for four days the entire wing supported the twin drives of XIII Corps and the 1st Airborne Division against Foggia. Between 18th and 21st September Nos. 3 and 450 flew 190 of the total 677 sorties of No. 239 Wing. Targets, though varied, were fairly plentiful as the enemy attempted to withdraw into defensive alignment, and motor vehicles, rail-trucks, tanks, petrol dumps and mobile gun positions were showered with 250-lb and 40-lb bombs throughout the areas around Altavilla, Rocchetta, Foggia and Manfredonia. The wing moved forward on 22nd September to Bari but, in a final attack from Grottaglie that day, Bartle led 10 Kittyhawks of No. 450 in an attack on shipping in Manfredonia Harbour, during which that squadron claimed remarkably accurate bombing results. Diving from 8,000 to 1,500 feet the Australians scored eight direct hits on a large ship and left it blazing, while accompanying Kittyhawks of other squadrons damaged a second vessel and started fires in warehouses and on the quayside.

When operations were resumed on a limited scale from Bari on the 24th, no movements were seen on any of the roads radiating from Foggia and only five motor vehicles were seen throughout a wide sweep covering Melfi-Grottaminarda-Ariano-Bovino. No. 3 found the best target of the day, a ship of 1,500 tons off shore at Vieste and scored one direct hit. There were few opportunities to strike at inland targets and the fighter-bomber effort fell away rapidly to a mere 12 sorties for the whole of No. 239 Wing on 27th September, the very day when the Eighth Army, by occupying Foggia without resistance, quietly achieved one of the principal strategic aims of the Italian campaign. The Australians had flown 46 of the 89 sorties during the past three days but, because enemy withdrawals and bad weather further limited the usefulness of aircraft

[1] W-O A. H. Collier, 61180; 3 Sqn. Clerk; of Sydney; b. Wellington, NZ, 16 Apr 1916. (Collier had earlier been shot down during the Sicilian campaign and had made his way back safely to his unit.)

lacking long-range tanks, they did not operate again during September. Instead on the 30th they moved to a badly-damaged satellite and then to Foggia main airfield where they became established by 3rd October. Here the hangars, administrative offices and barracks were too thoroughly destroyed to be of use, but, by requisitioning buildings in the town and repairing one large runway, the wing was soon ready for limited action.

To ensure full Allied use of the Foggia airfields General Montgomery's forces had pressed on towards Termoli and the line of the Biferno River.



To avoid a long and costly frontal assault against Termoli a brigade of XIII Corps was landed from the sea on 3rd October one mile west of the port to seize it in a surprise action and then to join the 78th Division advancing from the south-east. The enemy quickly sent the *16th Panzer Division* from the west coast to aid the units of the *1st Parachute Division,* which resisted stubbornly as soon as they had recovered from the initial surprise. Australian Kittyhawks flew 36 sorties on 4th October against roads in the enemy rear and increased this effort to 55 sorties next day. In one sweep on that day Flight Lieutenant Nash,[2] a newly-appointed flight commander of No. 3, led the Kittyhawks against a convoy of fully-laden petrol lorries near Venafro and claimed that 25 were set alight and others damaged. These and similar strikes made the forced march of the *16th Panzer Division* most difficult, but when it arrived in the Termoli area it counter-attacked with great purpose.

[2] Sqn Ldr M. P. Nash, DSO, DFC, 400101. 3 Sqn; comd Ground Control Unit attached US Fifth Army Sept-Oct 1944, 3 Sqn 1944-45. Textile engineer; of Brighton, Vic; b. Brighton, 21 Oct 1919.

The 6th October proved to be the critical day, and, while another outflanking landing was made north of Termoli, the whole fighter-bomber force was turned against enemy movements in the battle area itself. The Australians were given the "ticklish task of bombing German troops massing less than a mile from our forces and striking also at road transport bringing enemy supplies and reinforcements into the area". Although somewhat inflated claims of damage to enemy equipment were made by No. 239 Wing, its 186 sorties (including 52 by Nos. 3 and 450) were sufficiently impressive to evoke the praise of the Eighth Army which signalled: "Largely by your air effort the enemy's counter-attack, which was mounting, has been halted and is now postponed, if not abandoned." Certainly the moral effect must have been as great as the material damage, for the German Air Force was conspicuously absent and the Kittyhawks could roam at will. The Australians lost only one aircraft to ground fire, and its pilot, Pilot Officer Hankey,[3] successfully evaded German troops searching for him and reached the Allied air lines after 11 days. Meanwhile the Germans fell back slowly towards the Trigno River, leaving minefields and road-blocks to impede any pursuit.

On the main Fifth Army front the last fortnight of September also saw consistent if unspectacular Allied successes in the air. After the breaking of Kesselring's stranglehold on Salerno, it was at last possible to fly squadrons into the emergency airfield at Paestum and then to Montecorvino so that a far more satisfactory defence situation was achieved. At the same time the enemy evacuation of Foggia reduced the main air threat, so that R.A.A.F. aircraft were free to conduct an offensive against any targets which offered. Heavy and medium bombers again began to strike farther afield, partly to disrupt enemy supply lines and partly in semi-tactical operations designed to impede the *Tenth Army's* orderly retreat. After 20th September the bombers turned their attention to Bastia, Leghorn and Pisa, terminals of the sea and air routes by which the Germans were successfully evacuating their garrisons from Corsica. Sardinia was already under Allied control and the bombers were able to use for emergency landings their old targets in the Decimomannu area. Behind this vast shield and sword of air power the Fifth Army captured Naples on 1st October and Caserta four days later. Naples was so heavily damaged by Allied bombing and enemy demolitions that some time elapsed before its full usefulness could be restored but by 6th October, with the Allied line running along the Volturno and Calore Rivers, there was little doubt that the immediate aims of AVALANCHE had been achieved.

There was no thought of terminating the Italian campaign at this juncture, even though it was recognised as a secondary theatre of war. American opinion wished to prevent any military adventures in the eastern Mediterranean and therefore General Eisenhower considered his future task should be to pin down the maximum German forces far from the

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[3] F-O E. Hankey, DFM, 411022; 3 Sqn. Clerk; of Bondi, NSW; b. Auckland, NZ, 21 Jan 1922.

proposed scene of OVERLORD; to drain German economy by the constant need to sustain at least the northern part of Italy, and to seize the great political prize of Rome, where also would be found further airfields from which Germany could be constantly attacked. To a degree, the first two of these aims succeeded and thus made a material contribution to OVERLORD, but the necessity to make a continual dogged frontal assault, with barely sufficient ground troops, over country ideally suited to defence, created special problems which in turn reacted unfavourably on general Allied strategy. General Eisenhower and his successor, General Maitland Wilson, continually urged retention of naval facilities earmarked for OVERLORD, and this inevitably had some adverse effect on the timing of that operation and of the corollary attack on southern France (ANVIL). Even more noticeable was the extent to which air power was to be used in Italy to supplement inadequate Allied ground forces.

Both enemy and Allied generals have expressed themselves as well satisfied with the course of fighting in Italy: the enemy because it went on until the end of the major war, and the Allies because, although the Germans throughout had fewer divisions in the front line, they had to maintain garrison and reserve units throughout Italy so that the dozen Allied divisions were really preoccupying about twice that number of enemy divisions. The Allied offensive in Italy was only possible, however, because of a colossal expenditure of bombs, artillery shells and tanks. It may be academic to consider whether, had a defensive line covering Naples and Foggia been held and threats simulated in other areas, a more profitable result might have been achieved from the mass of metal poured into the Italian campaign. An earlier decision to transfer General Eisenhower and his chief assistants to the main OVERLORD enterprise might have given greater impetus to that operation and at the same time caused an economic adjustment to Mediterranean campaigns, especially in the air. As it was, a campaign developed which, in its particular form, could have been sustained only by a combination of powers with prodigious air resources, the employment of which may perhaps be vindicated by final Allied victory, but which supplies no firm guide to future warfare.

For the Germans, their failure to liquidate the Salerno beach-head marked the end of a stage in the air war. Between the end of the Tunisian and the beginning of the Sicilian campaigns, German air resources in the Mediterranean had been increased by 50 per cent from 800 to 1,200 operational aircraft. When this had failed utterly to challenge Allied air power, the enemy decided to cut its losses and Italy received a very low priority for air units. Defensive ground fighting called for a minimum of close-support or fighter aircraft which were mainly withdrawn to Germany itself or to eastern or south-eastern fronts where they might still be of positive use. Thus at the very time when Allied ground campaigns were becoming more and more reliant on prodigious air power, the enemy purposely avoided air battle. By early October 1943 there were only 430 German aircraft in the entire central and western Mediterranean area, and by the end of the year this had slumped to 370. While this provided



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perhaps minimum resources in offence, defence and reconnaissance, it avoided any large-scale battles which would inevitably have cut deeply into *Luftwaffe* resources of equipment and trained aircrew. The Italian campaign could not, therefore, fulfil the main purpose of SLEDGEHAMMER or even of the American part of the combined bomber offensive. From a German standpoint operations in Italy absorbed a very significant part of Allied air power at the expense primarily of ground action; from the Allied standpoint a relatively small but important German army force could be contained only by the expenditure of air power.

The pattern for much of the subsequent fighting in Italy had already been formed by the end of September 1943. The Germans were now fully determined to delay Allied progress, while the Allies wished to press forward as swiftly as possible, relying on their marked material superiority to overcome the natural enemy advantage of terrain. Kesselring had already begun to build the deep fortified zone of mutually supporting positions which ran across mountainous country between the Garigliano and Sangro Rivers. This zone contained two main lines, the advanced Bernhard (or Winter) line, and the second but even stronger Gustav line which hinged on Cassino. Rightly divining that Allied intentions were fixed doggedly on Rome, Kesselring made these positions strongest in the centre. Thus the Germans were concerned with maintaining their hold on the Volturno-Calore and Trigno positions only until the new vastly-superior and more economically defensible lines were ready for occupation. Kesselring was then very willing that the Allies should exhaust themselves in frontal assaults while German forces gathered strength. After rain—henceforth a faithful ally of the defenders—had retarded the Fifth Army's preparations, the Allies attacked the Volturno positions on 12th-13th October. The Germans put up a spirited defence for several days and then began a methodical withdrawal. Skilfully using the short-term advantages offered by hilly country crossed by many small water-barriers, the enemy enforced another fortnight's delay before the Allies reached the Garigliano-Camino front early in November.

Throughout October North-West African Air Forces had flown an average of 900 sorties each day despite consistently adverse weather. The heavy bombers had begun participation in the combined bomber offensive by an attack against Wiener Neustadt, but most of the heavy and medium-bomber effort was still expended against airfields and communications in northern Italy. The light bombers and fighter-bombers hammered at areas in the immediate enemy rear, at times, as in the Volturno battles, assisted by the medium bombers. The Coastal Air Force still searched for enemy shipping, protected friendly convoys, and undertook the defence of Allied ports, thus releasing the Tactical Air Force for entirely offensive operations. For practically all the airmen involved, operations had become a matter of routine, of maintaining pressure to attain a distant objective rather than to achieve an immediate and obvious success.

On the east coast weather put an even stronger brake on all operations and, even when aircraft could fly, the pilots could rarely find worthwhile targets. The Australian airmen of No. 239 Wing in enforced idleness on the drab windswept plain of Foggia saw the onset of a European winter with no such heart-warming consciousness of high endeavour as had been theirs a year before at El Alamein. Enemy air activity could hardly even be described as slight and although either No. 3 or No. 450 flew at least one patrol each day, their combined total of sorties between 7th and 17th October was only 107 and these achieved relatively minor successes against chance-encountered road traffic. Then, as the Eighth Army patrols neared the lower reaches of the Trigno and met stiffer enemy opposition, the fighter-bombers were given more precise targets. The Australians were frequently directed against gun-posts, strongpoints and villages in the enemy defences but only 227 sorties were made between 18th and 26th October, by which time the Eighth Army had secured a bridgehead north of the Trigno. Most of these operations were repetitive, only the place names changing from day to day, but a new note was struck on 24th October when Eaton led an anti-shipping sweep off the Yugoslav coast. Yugoslav irregular forces on the Zagorje peninsula were at this time heavily beset by German troops, and the fighter-bombers were ordered to attack targets of opportunity. Eaton discovered a merchant vessel and two barges in a small harbour and these were set on fire with bombs and machine-gun fire.

On 27th October No. 239 Wing moved from Foggia to Mileni, being met at this new location by heavy rain which restricted flying for some days. The same bad weather hindered the Eighth Army which had to delay its attempt to cross the Trigno until 2nd-3rd November, when naval and air bombardment, together with superior ground equipment, forced the enemy to retire to the Sangro line. For three days the Australians had a brief burst of activity both behind the enemy lines and against tactical targets on the battlefield which the ground forces especially detailed for attack. Thus on 3rd November No. 3 Squadron earned special praise for a particularly effective attack against enemy guns at Palmoli. For the remainder of November four types of operation—specific close-support tasks; independent armed reconnaissance; escort for medium bombers and increasing attrition of coastal shipping in the Adriatic—vied for the relatively small effort put forth by the fighter-bombers.

On 6th November Bartle finished his operational tour and was replaced in command of No. 450 by Squadron Leader S. G. Welshman. No. 450 was at this time busily preparing its new Kittyhawk Mark IV aircraft for action and even made a test flight carrying six instead of the usual two 250-lb bombs, but pilots found to their dismay that this type, despite its obvious advantages in range and pay-load, lacked blind-flying instruments, so that it was difficult to operate under prevailing conditions. Thus No. 3 was the more effective of the Australian squadrons at this time—as on 7th November when Eaton led two anti-shipping raids against Split in Yugoslavia during both of which bomb hits were claimed on

medium-sized vessels. The Australians ranged as far as Ancona on 12th November and bombed and strafed enemy aircraft incautiously paraded on Iesi airfield. Practically no flying was possible during the next week but on the 19th, when the Eighth Army asked for attacks against several targets, Eaton led the only formation of No. 239 Wing which was not forced to abandon its task. His eight Kittyhawks found a hole in the overcast covering Opi and made a quick snap attack before swirling turbulent cloud again blotted out the enemy position.

The Eighth Army was now probing at the Sangro line preparatory to a full-scale assault, but with Mileni drenched in rain the Kittyhawks could play no part in events before 27th November. Then for three days they found constant employment, whenever they could fly, in support of the New Zealand division. On the 29th, the day of heaviest participation, the Australians flew 47 sorties in the Lanciano-Mozzagrogna-Sangro River area, and No. 3 was again commended for an "outstanding and determined attack" on two gun emplacements and a network of trenches.

While leading a similar raid on 1st December Welshman crashed in flames near the Eusanio railway station, the first fatal casualty either of the Australian squadrons had suffered during three months of fighting in Italy, although several pilots had previously been forced down but had landed safely. Squadron Leader K. R. Sands took over command of No. 450, and another veteran, Flight Lieutenant Hudson,[4] was given command of "A" Flight in his place. As the wintry weather became more and more severe there was no smooth flow of operations, although, in the absence of enemy activity in the air, the fighter-bombers were usually able to meet at least the most important commitments. On 14 days in December there was no flying at all, and practically all the 404 Australian sorties that month were brief and distinct efforts in close support of the army. Flying Officer Doyle[5] led a very successful attack against four well-concealed 88-mm guns and an ammunition dump on 5th December, and then, between 8th and 10th December, both squadrons operated more intensely than they had for months in flying 189 sorties in support of the Canadian drive across the Moro River. By this time the "cab rank" system of operating fighter-bombers had become general and the Kittyhawks were sent to patrol predetermined areas and were then directed against specific targets by radio-telephone instructions from a mobile army-air observation post, this system proving particularly effective against objectives such as enemy guns which were frequently redeployed overnight.[6] On the 8th No. 3 encountered enemy aircraft near Orsogna, but, although the Australians fired at 5 FW-190's and 10 Me-109's, they made no claim to damage. Two days later the Kittyhawks had what pilots

[4] Sqn Ldr R. T. Hudson, DFC, 402356. 451 and 450 Sqns; comd 450 Sqn 1944. Salesman; of Five Dock, NSW; b. Sydney, 26 Jul 1919.

[5] Sqn Ldr J. C. Doyle, DSO, DFC, 404604. 3 and 450 Sqns; comd 450 Sqn 1944-45. Jackeroo; of Longreach, Qld; b. Cloncurry, Qld, 21 May 1918.

[6] The "Rover cab rank" pilots carried copies of specially gridded photographs of their patrol area and could be briefed first by grid reference and then by ground detail without betraying to enemy ears the precise location. In any case attack followed so closely upon instructions that enemy defences could rarely be alerted in time. The system evolved naturally into the rapid close-support technique later used by Second TAF.

described as a "field day" because, in addition to successful attacks on strongpoints, there was much hurried enemy road movement so that by the evening the Australians saw again the once-familiar scene of a trail of burning and smoking vehicles. This heartening day, however, saw three Australian aircraft forced down and others hit by very determined and accurate ground fire, although all pilots returned safely to Mileni.

The next highlight came on 20th December when 45 sorties were flown by Nos. 3 and 450 in support of the 1st Canadian Division as it battled its way into the outskirts of Ortona. Other activity had been against gun positions in the area around Orsogna where German troops proved particularly stoical in the face of repeated air assault, and where XIII Corps was forced to break off its costly frontal assault on 20th December. The fighter-bomber effort tapered off rapidly after this date and indeed on the 23rd ceased entirely for a week. Both Australian squadrons moved forward on 28th December to Cutella and ended the year in a burst of activity, flying 83 sorties against enemy positions near Miglianico and Tollo. Cutella, however, was far from ideal as an operational base and became awash when heavy rains fell on 1st January 1944. Moreover strong gales forced the sea up the beach, causing salt-water corrosion of aircraft. Wet, miserable and with their camp a shambles, the Australians faced this inauspicious beginning to a new year with mixed feelings. The ground fighting was also practically halted because of intense cold and deep snow, so that, until Nos. 3 and 450 were again available on 9th January, sufficient air support for the Eighth Army was provided by Desert Air Force units more happily situated on all-weather airfields.

When No. 239 Wing moved to Mileni on 27th October 1943 the intention was to permit full use of the Foggia airfields by heavy bombers. For a long time one of the arguments which had reconciled the American Chiefs of Staff to full participation in Mediterranean campaigns was the general assumption that they would lead to the capture of bases from which targets in north Italy, Germany and the Balkans could be attacked from the air. As the vision gradually became a reality, and certainly by the time of the Quebec conference—14th to 24th August 1943—there was less general agreement as to the form the new offensive should take. General Henry H. Arnold, Commanding General, United States Army Air Forces, favoured a single command for all aircraft engaged in the combined bomber offensive, which would operate as desired from United Kingdom or Italian bases according to tactical requirements. Both the American Eighth Air Force and R.A.F. Bomber Command strongly opposed such amalgamation as each was persisting in its own theory and practice of bombing. On the other hand neither of them wanted a separate force of strategic bombers set up in the Mediterranean, as this would entail diminution of the forces available for operations from the United Kingdom.

The POINTBLANK plan was already somewhat behind schedule and General Ira C. Eaker, Commanding General, U.S.A.A.F. in the United

Kingdom, considered that his daylight campaign against the German Air Force, already faltering because of tragically high losses, could not be fought successfully unless his Eighth Air Force was built up quickly without any diversion of heavy bombers or long-range fighters to other areas. Both the Air Ministry and Eighth Air Force also questioned the capacity of Italian airfields and maintenance facilities to permit either a separate force or constant shuttle-bombing to be operated without an inordinate drain on general logistics. Perhaps naturally the obverse factors of splitting the enemy air defences—better flying weather, and ability to reach industries dispersed outside of normal range from United Kingdom bases —were stressed by General Eisenhower and Major-General Carl Spaatz, commanding North-West African Air Forces, who also contended that sufficient bases in Italy could be made available within a reasonable time. After much cross-testimony the American Chiefs of Staff on 22nd October finally authorised the setting up of the Fifteenth Air Force as from 1st November. Initially all American air units in the Mediterranean were to be reallocated according to type to the Fifteenth Air Force (strategic) and the rejuvenated Twelfth Air Force (tactical). The Fifteenth Air Force was thus at first merely the American part of N.A.S.A.F., including the Liberators originally belonging to the Ninth Air Force, and would include two wings of medium bombers until sufficient four-engined aircraft and crews could be sent from America; its six groups of heavy bombers were to be expanded to 21 by May 1944.

Just as the Fifteenth Air Force itself was a compromise solution so was its directive. It was subordinate to the theatre commander but was to cooperate in POINTBLANK. A conference at Gibraltar on 5th November 1943 between representatives of the Eighth and Fifteenth Air Forces resulted in a somewhat vague decision that each should decide its own priorities of targets. Soon afterwards (14th November) a N.A.A.F. directive set forth its priorities as: (*a*) destruction of the German Air Force; (*b*) support for the Italian campaign; (*c*) participation in POINTBLANK; (*d*) weakening of the German position in the Balkans. It was clear that local events would greatly influence the employment of the heavy bombers. Five aircraft factories and two ball-bearing plants in enemy-held territory were given to the Fifteenth Air Force as major POINTBLANK targets, but few sorties were flown before the end of the year. The heavy bombers moved relatively slowly from Tunisia to the Italian mainland, and meanwhile the weather was unsuitable for attacks at very long range, but did not prohibit attack against Italian communication targets. There were also signs of a vicious circle by which the combined bomber offensive could only be prosecuted fully if the ground campaign in Italy should lead to the acquisition of new bases; but, for the ground campaign to prosper, the heavy bombers would frequently have to be used in a semi-tactical rather than a truly strategic role.

The considerations which governed the employment of American bombers also affected No. 205 Group which was reduced during October to a force of 120 Wellingtons (six squadrons) because of the

return of the Canadian wing to the United Kingdom. Although No. 205 Group was only a small part of the strategic bomber force, the bomb-load of the Wellington was outsize for a "medium bomber", and the importance of night attack as a counterpart to day operations grew rather than diminished during this period. The number of Australians with the group rose by December 1943 to 175, or about 20 per cent of all air-crew. This was the highest degree of Australian participation, although, when the group later expanded, there was for a short time an even larger number of individuals serving with it. In December 1943 the men were spread fairly evenly among the six existing squadrons with the largest batch (43) with No. 150 Squadron R.A.F. and the smallest (20) with No. 37 Squadron. Of the total 175, no fewer than 69 were pilots though the number of fully-Australian crews remained small.

The onset of wintry weather was the first factor to react on the operations of No. 205 Group. A complete stand-down on 26th September ended a remarkable period of 58 successive nights on which Wellingtons of the group had undertaken bombing or leaflet raids in force. During October, however, weather over the proposed route or aerodrome unserviceability forbade operations on 11 nights, and weather also seriously reduced the effectiveness of attacks against rail and road communications in Italy which were the main targets for the month. Nevertheless some 800 sorties were flown and 1,250 tons of bombs dropped for the loss of 15 aircraft, the outstanding success of the month being the destruction of a railway bridge at Giulianova on 21st-22nd October.

Operations were possible on only 13 nights during November, but by moving forward to Oudna and Djedeida near Tunis and by employing Elmas (at Cagliari) and Decimomannu as advanced refuelling points, the Wellingtons were able to strike deeper into northern Italy and to attack viaducts in France as part of the general attrition of enemy communications. Ciampino airfield near Rome was also attacked on 22nd-23rd November, and again on 28th-29th after reports that enemy ground-support aircraft were operating from this base. None of these attacks was very heavy or achieved real success, although a few spectacular craters at different targets were caused by 4,000-lb bombs. The one maximum effort of No. 205 Group came on 24th-25th November when 83 Wellingtons were detailed to attack the Villa Perosa ball-bearing works south-west of Turin, which was one of the combined bomber offensive targets of the Fifteenth Air Force.

The Turin operation, in addition to being completely ineffective, proved the most costly in the history of No. 205 Group to that date. A favourable weather forecast had been eagerly awaited for some days, and, although duly given on 24th November, proved false. Six out of seven Wellingtons sent to Elmas for refuelling failed to take off because of ground delays, but in the light of later events this was perhaps fortunate. At the time of take-off for the main force from Tunisia, a strong cross-wind at Djedeida caused postponement for the 30 aircraft of No. 231 Wing, which were then ordered to attack three hours later than the others.

A severe frost was encountered in the Gulf of Genoa with almost complete overcast; navigation difficulties were further increased by a strong westerly wind. Only nine of the 76 Wellingtons which actually set out for Turin reached the target area. Seventeen aircraft including four captained by Australians were lost, almost certainly because of weather rather than enemy action. The crew of a Wellington piloted by Flying Officer Gilbert[7] of No. 37 Squadron baled out safely over Corsica after experiencing engine trouble on the way to the target, and Warrant Officer Bryant[8] of No. 142 Squadron safely ditched his Wellington in the sea near Borgo; but aircraft flown by Flight Sergeants Tyas[9] and Wade,[1] also of No. 142 Squadron, were among the large majority which could not be accounted for despite comprehensive air-sea rescue searches from Tunisia and Corsica. Only one Australian captain identified the navigation point at Genoa and he jettisoned his bombs over Turin.

December brought the long-awaited move of No. 205 Group to Italy, but, partly because of the weather and the fact that the new airfields at Cerignola were not ready for night flying, operations were carried out on only five nights with a meagre total of 106 sorties flown against Pontassieve and Voghera marshalling yards and Treviso airfield. This temporary decline of British night bombing in the Mediterranean was pointed-up by two raids by German bombers against Bari. On 2nd-3rd December 30 enemy planes approached under cover of "Window" and bombed accurately; this success was enhanced thirtyfold because bombs hit two ammunition ships and the resultant explosions and fires sank 17 ships and heavily damaged all port facilities. The second raid had no such spectacular success but had a significance of its own in that on this occasion the bombers came from Balkan airfields. In fact the earlier Bari raid was a magnificent swan song because enemy bombers were withdrawn from north Italy by the end of the month.

Although, as has been seen, the Germans, after Salerno, reversed the air priority which they had previously given to the central Mediterranean and began a voluntary withdrawal of units from Italy, they showed ability to profit from the use of air forces in areas where the general situation was not so heavily loaded against them. They quickly restored the shaken position in the Ionian Sea and the Dodecanese, the outward bulwarks of the Balkans. Thus, while Eisenhower considered that both his instructions and his means forced him to concentrate solely on the Italian situation, the Germans began a systematic, vigorous and effective campaign to secure the eastern Mediterranean, which was largely garrisoned by Italian troops and thus became on 9th September 1943 almost a vacuum.

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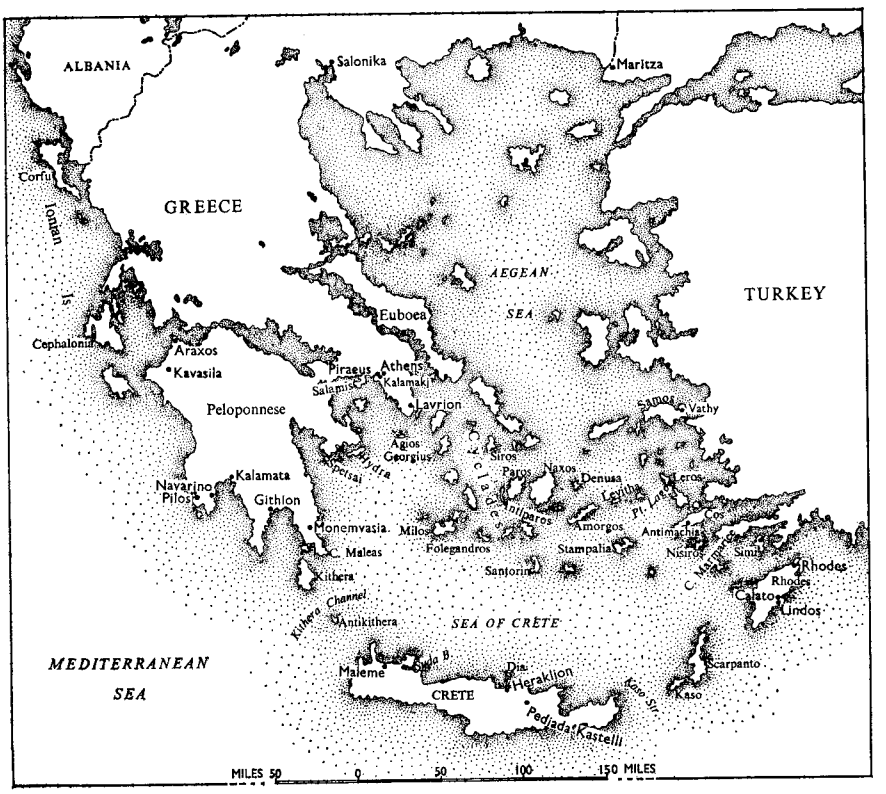
[7] F-Lt C. F. Gilbert, 415319; 37 Sqn RAF. Bank clerk; of Cottesloe, WA; b. Cottesloe, 9 Apr 1923.

[8] F-O S. L. Bryant, 409379; 142 Sqn RAF. Fitter and turner; of Hawthorn, Vic; b. Auburn, Vic, 16 Oct 1917.

[9] F-Sgt R. C. Tyas, 411617; 142 Sqn RAF. Electrician; of Eastwood, NSW; b. Sydney, 5 Jun 1917. Killed in action 24 Nov 1943.

[1] F-Sgt J. G. Wade, 413050; 142 Sqn RAF. Farm hand; of Marrar, NSW; b. Marrar, 25 Jun 1917. Killed in action 24 Nov 1943.

British plans for an Aegean campaign had existed for a long time and centred on the seizure of Rhodes. The strategic importance of this island was indisputable as its capture would threaten the whole enemy position in the Aegean, Greece and Crete. It was sufficiently large to contain ground, air and naval forces able to withstand any likely enemy counter-attack, and success there would create a favourable reaction in Turkey. General Eisenhower's reluctance to subtract anything from AVALANCHE and an



instruction from the Combined Chiefs of Staff late in August that assault-craft then in the eastern Mediterranean should be sent to India, left General Maitland Wilson with insufficient forces to contemplate the Rhodes operation. Instead, beginning on 13th September, small airborne and sea-borne parties were established on the islands of Cos, Leros and Samos.

This gamble of infiltrating relatively weak forces within the ring of enemy defences was justifiable if German reaction was not strong or immediate and if the Italian garrisons could be encouraged to a stout-hearted defence during the critical early period. Unfortunately neither of these assumptions proved correct and neither the small number of air-craft which could initially be established on Cos, nor the relatively few

Beaufighters in Cyprus and Cyrenaica, were sufficient to provide an adequate air defence for the islands or the supply ships upon which their continued resistance must depend. Long-range fighters could not be spared from the central Mediterranean at least until such time as fighter defence for AVALANCHE could be assured from airfields on the Italian mainland.

At this distance it is obvious that the Allies overestimated the difficulty of taking Rhodes. Again, should Rhodes be firmly in enemy hands, the chances of successfully holding other islands was small. In the event a small German element of the Rhodes garrison intimidated the Italians and was in effective control of the island by 12th September, but remained vulnerable to any determined attack which might have been made during the next fortnight because the Germans could not at first divert any air units to Rhodes. During the month after the general Italian surrender the strength of German air forces in the eastern Mediterranean was increased by 40 per cent to approximately 350 first-line aircraft by transfers from both the Eastern and Western fronts. This force was by no means large in comparison with Allied strength, but, favoured by possession of adequate bases and internal lines of communication, and applied with intelligence and pertinacity to the problems confronting it, it proved more than capable.

The first German aim was to secure the eastern Adriatic and this was done by the capture of Cephalonia (21st September), Corfu (24th September) and Split (26th September) in each case after intensive bombing by the relatively small force of Ju-87's and fighter-bombers available. Dive-bomber units were then quickly transferred to eastern Greece and Rhodes in preparation for attacks against the islands seized by the Allies. Cos was the logical first objective both because it was the only one where Allied aircraft were established and was nearest to Rhodes; its capture would leave the other Allied garrisons trapped well within the German defence perimeter with decreased chances of receiving seaborne supplies. Very quickly the Germans achieved local air superiority and control of the sea lanes in the eastern Aegean during daylight. The actual assault on Cos, beginning on 3rd October and ending with its capture late the next day, was again a triumph for the outmoded Ju-87 which with approximately 150 sorties created a legend of overwhelming air attacks which compares strangely with concurrent Allied attacks in Italy. The Germans had many circumstances in their favour, but with only meagre forces they did succeed in exploiting them fully.

The fall of Cos was a material and symbolic success which cut deep into the potential advantages which the Allies might have gained from the Italian capitulation. Mr Churchill urged immediate counter-action but American opinion was strongly against what could be regarded as diversions from the main task. A conference between Generals Eisenhower and Wilson on 9th October to consider means of restoring the situation had little practical outcome because the time had passed when Rhodes could be captured with other than a full-scale assault. General Eisenhower felt himself unable to offer either land or naval forces. However, as the

Aegean campaign offered opportunities to strike at the German Air Force, two groups of Liberators, one of Lightning long-range fighters, one of Mitchells, and a squadron of Beaufighters were temporarily transferred to Cyrenaica, and other N.A.A.F. aircraft both from Tunisia and Apulia applied part of their effort against airfields in Greece.

The almost entirely British air forces already in the eastern Mediterranean also did what they could to influence the battle, but they had already been divested of practically all strike units in favour of the Indian and central Mediterranean theatres, and many of the existing squadrons were retraining or rearming. The heaviest burden naturally fell on the Beaufighter squadrons, with whom only a handful of Australians was then serving, but the *Article XV* squadrons were all affected in some way by the new situation.

At the end of August 1943, No. 451, after its uneventful stay at Idku, moved to El Daba, 90 miles west of Alexandria, to continue its work of convoy protection and interceptions. This was enlivened only by the sight on 16th September of part of the surrendered Italian fleet on its way to Alexandria, but September was notable for a quickening of general interest. Squadron Leader R. N. B. Stevens came from No. 3 in a blaze of glory to assume command from Squadron Leader Paine.[2] Several veteran pilots who had long chafed at virtual inactivity left the unit, including Flight Lieutenant Hudson who, as mentioned, went to No. 450, and Flight Lieutenants Watts,[3] Kirkham,[4] and H. R. Rowlands, each to achieve swift promotion or distinction on operations. This sense of a more active future increased during October, when, at last, the Hurricanes were laid aside and the squadron rearmed with Spitfire Mark V's. From El Daba the Spitfires could do little to influence the Aegean situation, but excitement ran very high when the unit was told that it would move to Aleppo in Syria; general rumours suggested that the eventual destination was Turkey. The advance party duly left El Daba on 9th November and, after a week of restocking at Helwan, reached Tulkarm (near Tel Aviv in Palestine) by 18th November in the highest spirits, only to receive word that the move had been cancelled. It was a bitter disappointment after hopes, however false, of reaching the fighting line, and the convoy was back at El Daba by 22nd November. The squadron went back to what its diarist sadly called "the eternal convoy patrols", and stood by helplessly while Leros and Samos fell. Kirkham returned on 9th December as commanding officer. The Cairo conference revived hopes of a more active role, and these were reinforced on Boxing Day 1943 when news came that Spitfire Mark IX's had been allotted to No. 451.

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[2] Sqn Ldr J. Paine, 39470 RAF. 35, 40, and 45 Sqns RAF; Long Range Desert Gp 1941; 450 and 451 Sqns; comd 451 Sqn 1943; 164 Sqn RAF; comd 114 MFCU 1945. Regular air force offr; of Adelaide; b. Kadina, SA, 18 Sept 1914.

[3] Sqn Ldr W. K. Watts, DFC, 400827. 451 Sqn, 80 Sqn RAF, 3 Sqn, 112 Sqn RAF. Butcher; of Yarraville, Vic; b. Boulder, WA, 10 Aug 1915.

[4] Sqn Ldr E. E. Kirkham, 402365. 3, 450 and 451 Sqns; comd 451 Sqn 1943-44. Newsagent; of Strathfield, NSW; b. Sydney, 29 Nov 1917.

No. 459 Squadron at Gambut became far more deeply involved in the Aegean campaign. September began quietly with a steady program of convoy escort tasks. The first reaction to the Italian capitulation on 8th September was a general feeling that the squadron would soon move, because even if the war continued the Germans would be unable to operate or supply U-boats in the eastern Mediterranean and would make their major effort between Gibraltar and Italy. The more ebullient members of the squadron prophesied a quick return to Australia, even though Air Vice-Marshal H. N. Wrigley, then touring the Middle East, had warned them on the 7th that no general scheme existed for repatriating Australians before the end of the war. The thrill of escorting the *Italia* and *Vittorio Veneto,* four cruisers and several destroyers on 15th September masked in most minds the implications of the British occupation of Cos, Leros and Samos. Thus, on the 20th, it came as a complete surprise, when No. 459 was busily preparing six Hudsons for escort duty that night, for Wing Commander P. W. Howson to announce that he had committed the squadron to a maximum effort of 16 aircraft against a target on the European mainland—Kalamaki airfield five miles south of Athens. Aircraft on detached duty at LG-07 and LG-91 were recalled and the normal depth-charges carried by all aircraft were replaced by 250-lb bombs.

The decision to use naval cooperation aircraft in a bombing role emphasised the scarcity of night-flying aircraft then in the eastern Mediterranean. It was many months since the Australians had carried bombs and the technique then employed had been mast-head attacks against ships. There was, however, tremendous enthusiasm for this novel task and much scurrying about by navigators to ensure that the long unused bombsights were in good order. The Hudsons were camouflaged white for their normal duties and many jokes were immediately coined about the new "invisible bomber" which would confound enemy searchlight crews. Of the 16 aircraft detailed, three had insufficient range to reach Kalamaki and these were to attack Heraklion airfield in Crete. The main body of 13 Hudsons took off shortly before 2 a.m. on the 21st, and of these two were forced to return early because of defects, but were quickly repaired, refuelled and sent out again with the group attacking Heraklion. Seven of the party led by Howson duly found and bombed Kalamaki which had already been attacked by Wellingtons of No. 38 Squadron; three of the remaining four attacked minor targets of opportunity including a ship and a secondary airfield. One of the five sent to Crete failed to attack Heraklion and all aircraft were safely back at Gambut by 8 a.m. One of the most noteworthy features was that the ground crews had their maintenance work at such a high standard that they were able to ready the entire complement of the squadron for an unlooked for and unorthodox task at a few hours' notice.

This was not, as the crews thought at first, a single surprise attack; it was the beginning of the new Aegean air campaign. Seven aircraft

were detailed for an attack against Pediada Kastelli on the 21st-22nd, but this was cancelled because of low cloud over Crete. Eleven Hudsons were sent out two nights later to attack Maleme (Crete). There, as at Kalamaki, crews found that enemy anti-aircraft fire, although impressive from a distance, was not very accurate, so that only one Hudson was slightly damaged by gunfire. The same night No. 459 sent four aircraft to patrol between Crete and Scarpanto to detect any German seaborne reinforcements moving towards Rhodes and ready to illuminate them with flares so that Wellingtons might attack with torpedoes. These, however, made no sightings, nor did two others sent out on similar duties next night. Night anti-shipping patrols, chiefly in Kaso Strait but on occasion as far north as Milos, continued until the end of the month while Pediada Kastelli was twice attacked, by five aircraft on the 25th-26th and three on 27th-28th September.

These nibbling attacks by No. 459 and other squadrons of No. 201 Group could do little to affect German air deployment in the Aegean. Heavier attacks by N.A.A.F. aircraft were possible after 4th October when General Eisenhower at last thought it justified to divert some air effort from the Italian battle. But by this time Cos had fallen and neither attacks from central Mediterranean bases nor the balanced force later sent to Cyrenaica were in time to redress the situation, which had turned fully in Germany's favour. Nevertheless, this external aid offered some promise that Leros and Samos might be held and, by preoccupying enemy forces, warrant Allied expenditure of effort. The Lightning long-range fighters were especially valuable as they might again give safe access to the beleaguered islands for seaborne supplies. These fighters were sent to Gambut where, earlier in October, Wing Commander Henderson[5] had taken over No. 459 from Howson. The Australians were able to provide emergency messing for the Americans, and for three nights in succession all hands loaded and transported petrol for the visitors' use.

Meanwhile the emphasis of the Hudson operations, primarily devoted to the Aegean except for the last few days of the month, turned in October from bombing airfields to anti-shipping strikes. Only if no German shipping was encountered were the crews to attack the secondary targets of Heraklion or Pediada Kastelli. After 4th October the area of search and patrol shifted from Kaso Strait to the vicinity of Cos, where, on 9th-10th October, Pilot Officer Page[6] hit an F-boat and Flying Officer Hawkins[7] scored a hit on the stern of a small merchant vessel. Three nights later Flying Officer Stormon[8] was one of several pilots to attack

[5] Gp Capt A. D. Henderson, OBE, 217. 6 and 8 Sqns; Staff Offr Operations Western Area and comd 7 Sqn 1942; Staff Offr Operations North-Western Area 1942-43; comd 459 Sqn 1943-44, 454 Sqn 1944-45. Regular air force offr; of Bathurst, NSW; b. Randwick, NSW, 15 Mar 1915.

[6] F-Lt G. Page, 9455; 459 Sqn. Fitter; of Rockhampton, Qld; b. Longreach, Qld, 25 Dec 1918.

[7] F-Lt H. Hawkins, 405128. 163 Sqn RAF, 459 Sqn. Radio salesman; of Toowoomba, Qld; b. Toowoomba, 18 Feb 1921.

[8] F-Lt A. G. Stormon, 412040; 459 Sqn. Business manager; of Narooma, NSW; b. Cobargo, NSW, 14 Aug 1916.

a small ship, identified by reports from survivors who landed in Turkey as the *Santorini*. On all duties including convoy escort No. 459 flew 170 sorties during the month and their tally would have been higher but for a violent dust storm followed by torrential rain at Gambut early on the 20th. By nightfall the airfield was flooded and unserviceable and no operations were possible until the 26th.

Neither the heavy but infrequent N.A.A.F. attacks, nor the more constant effort of Headquarters R.A.F. Middle East could do more than delay slightly enemy preparations for assault against Leros. German units disposing nearly 300 aircraft varying from dive bombers to transports were assembled within range of Leros and began a systematic reduction of coastal defences and inland strongpoints. In the first week of November 1943, units of an enemy convoy of landing-craft and naval auxiliaries were reported near Lavrion moving south-eastwards. The searching air and naval forces had difficulty in intercepting this invasion convoy which was helped by bad weather, moved by day under strong fighter cover, and could hide at night in safe bays among the islands. The Baltimores of No. 454 Squadron, which in August had been transferred to Amiriya for anti-submarine duties and then had been sent during October to Palestine, had been brought back to Egypt to help with the daylight search. On 10th November Flight Sergeant Joiner[9] reported that he had discovered 14 landing-craft escorted by 7 aircraft between Levitha and Stampalia. Nothing more was heard from Joiner after the sighting report and it was presumed he was shot down. Two days later enemy seaborne and airborne troops landed on the north-east coast of Leros, and with steady but effective air support (amounting to approximately 140 sorties during which 120 tons of bombs were dropped each day) fought the defenders to a standstill by the evening of 16th November when Leros passed into enemy hands. Samos, the most northerly island seized by the Allies, was by this time obviously untenable, and after some enemy bombing it was voluntarily evacuated by the 22nd.

Prevailing bad weather seriously hampered Allied air activity over Greece and the Aegean, especially between 11th and 14th November when the battle for Leros was in progress. There was a switch in night targets again for R.A.F. Middle East aircraft which turned once more from shipping to airfields. The Halifaxes of No. 462 and the Liberators of No. 240 Wing attempted to eliminate airfields on Rhodes. No. 459 Squadron, which because of its previous very heavy flying program had been forced to return many of its Hudsons to the base repair unit, had difficulty in getting new aircraft, and at this critical juncture could rarely operate more than five aircraft at a time. Antimachia airfield on Cos was their prime target and this was bombed almost nightly between 4th and 14th November without casualties to aircraft or crews, but also without any real effect on the enemy ability to assault Leros. Two anti-

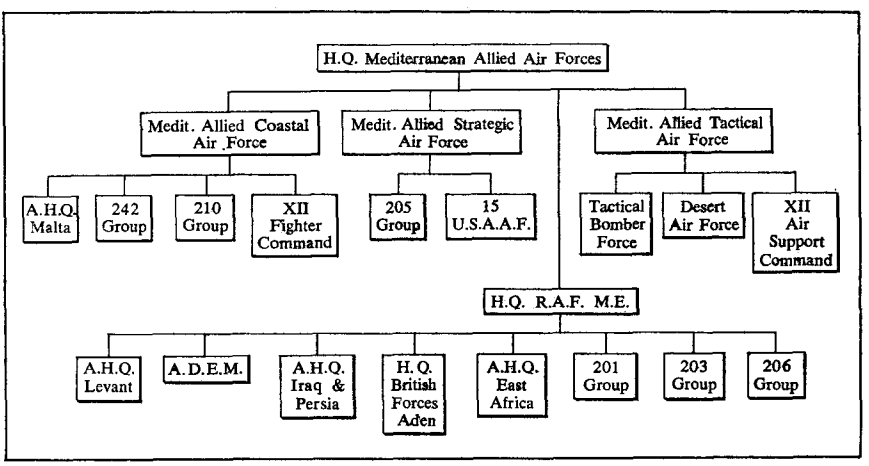
[9] F-Sgt J. H. Joiner, 409204; 454 Sqn. Clerk; of Kyabram, Vic; b. Kyabram, 7 Aug 1922. Killed in action 10 Nov 1943.

shipping sweeps and two attacks against Calato airfield on Rhodes were also made before the 18th when No. 459 went back to its basic task of convoy protection. This continued uneventfully to the end of the year with only minor diversions—a small attack against shipping at Rhodes on 5th November, and a coat-trailing sortie over Porto Lago Bay, Leros, on the 7th to test anti-aircraft reaction before a projected bombing attack by American Mitchells.

CHAPTER 4

THE MEDITERRANEAN: JANUARY-JUNE 1944

LATE in 1943 the Combined Chiefs of Staff approved a plan to unify the command of all ground operations in the Mediterranean theatre. General Eisenhower was officially nominated as Allied Commander-in-Chief Mediterranean Theatre, although he was to hand over this command as early as possible in January 1944 to General Maitland Wilson. For some time there had been a similar movement to coalesce all air forces, since Mediterranean Air Command, originally formed to ensure coordination between two fairly equal air forces in North-West Africa and the Middle East, had lost most of its value when the majority of units in the Mediterranean had passed under the control of North-West African Air Forces. The Cairo conference of December 1943 agreed that Mediterranean Air Command and N.A.A.F. should merge into a single headquarters to be known as Mediterranean Allied Air Forces which should ensure full coordination of all squadrons. This headquarters was officially recognised as from 10th December, but its formation was delayed because of the many transfers taking place from Tunisia to Italy, and it did not become firmly established until after General Eaker arrived from Britain in January 1944 to replace Air Chief Marshal Tedder as Air Commander-in-Chief. When complete the reorganised chain of command was:



Thereafter there were only minor changes. A special duties wing was formed in January 1944 to support partisan activities in the Balkans and this wing expanded in June 1944, largely at the expense of M.A.C.A.F., to form Balkan Air Force directly subordinate to M.A.A.F. A Mediterranean Allied Photographic Reconnaissance Wing began operations in February 1944, but in October American units were transferred to other

formations and British units brought together in a single wing. In the closing stages of the war, Malta once more reverted to direct control by M.A.A.F. There were also some changes during 1944-45 within the main formations, both Headquarters R.A.F. Middle East and M.A.C.A.F. declining rapidly after June 1944, while M.A.S.A.F. was reinforced continually with American units until July 1944, after which its strength remained relatively constant. Within M.A.T.A.F. the tactical bomber force was dissolved but a balanced tactical force was built up in Corsica in time for the invasion of southern France; and after August 1944 many of its units transferred to the control of Supreme Headquarters Allied Expeditionary Force (SHAEF).

Australians were affected only indirectly by this reorganisation and saw little change in their operations, although as time passed both individuals and squadrons were affected in varying degree by the continued transfer of force towards the main ground battle. On paper one Australian *Article XV* squadron disappeared entirely at the end of February when No. 462 Squadron R.A.A.F. officially became No. 614 Squadron R.A.F., but in reality this had little effect on the disposition of Australians in the Mediterranean. The decision that this Halifax squadron should take an R.A.F. nameplate had been made in December 1943 after many months of unsatisfactory negotiations to make the unit truly Australian in character. The new intention was to post away Australian members.[1] For the aircrew, however, there was no other Halifax squadron in the theatre to which they could be sent, and, as the somewhat tardy crewing arrangements had at last begun to take effect, there was an increase rather than a decrease in Australian aircrew suitable for Halifaxes sent to the Middle East. Nor could the Australian ground staff be quickly replaced because there were no other fitters in the Mediterranean at this time with comparable experience on Halifax aircraft. The anomaly thus arose that for a short while No. 614 Squadron was far more Australian than No. 462 had been; but by mid-1944 the replacement of ground staff was under way and the percentage of Australian aircrew was no higher than in any other squadron of No. 205 Group.

No. 462, commanded by Wing Commander Russell,[2] began to move from Terria to El Adem on New Year's Day 1944, but bad weather and a shortage of transport vehicles caused much delay in completing the move, so that throughout the month operations were conducted under adverse conditions. Only 46 sorties were flown during five missions to Piraeus and one each to Rhodes and Salamis, and bombing results were poor in relation to the effort expended, because on one night (15th-16th January 1944) the entire force jettisoned its bombs en route, and on each

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[1] One curious feature of this transition stage is the manner in which the news of the change was received by the squadron itself. The operational record book notes: ". . . This news was heard by all personnel with many regrets, as the Squadron had taken a long time to get used to the Australianisation, and although at the start there was quite a lot of ill-feeling, this had been overcome and at the present there is a spirit on the Squadron of comradeship and mutual respect which will be very hard to replace."

[2] W Cdr W. T. Russell, 39341 RAF. 84 Sqn RAF; comd 84 Sqn RAF 1941, 462 Sqn 1943-44. Regular air force offr; of Glasgow, Scotland; b. Singapore, 4 Jan 1918.

of the Piraeus attacks part of the force similarly abandoned its task because of adverse weather or technical failures within the aircraft. The squadron was already looking beyond these Aegean trips to more positive identification with the main air campaign, because on 19th January advice had been received that it would soon move to Italy. At the same time it would change its role from bombing to target-marking and become in effect the pathfinder squadron for the entire night-bombing effort in the central Mediterranean. Skeleton crews had already been sent to Britain for training in the new technique and the first of these returned during January with a specially-equipped Halifax in which local training might continue.

February was a month of hope delayed, full of minor difficulties attendant on moving a squadron over a large distance. The main ground party left El Adem for Almaza on 1st February, and, after replacing 75 per cent of its decrepit transport vehicles, sailed from Alexandria on the 15th on the *Batory*. This ship docked at Naples on 21st February, and after a week in the base depot the men began their final move across the Apennines in cattle trucks during bitterly cold weather to Celone on the plain of Foggia. Meanwhile the rear party at El Adem suffered wind and sandstorms which blew open tents and caused windbreakers, billowing like spinnakers, to split or break away; roofs were lifted from several permanent buildings and the mess collapsed. Only 21 sorties were flown during February, all of them being either diversionary bombing or leaflet-dropping flights into the Aegean, and the principal activity at El Adem was a course of ground instruction for aircrews on the Mark IV bomb-sight and H2S radar equipment, which few had seen. Impatience to move away from the sand and dust of El Adem nagged at everyone, because, although they had "ample if crude meals", they had no amenities except those made available by headquarters personnel at El Adem. Special efforts were made to ensure that the aircraft were maintained in a serviceable state, and it was with relief that news of the main party's arrival at Celone was received; and at last the Halifaxes could themselves go there. On 1st March the rear party breakfasted long before it was light, the headlamps of a truck shining on the serving table as the men ate among the clutter of their packed up gear; by 7 a.m. they were on their way to Italy. Two days later the change in designation from No. 462 Squadron to No. 614 Squadron R.A.F. was officially promulgated.

Early in 1944 No. 451 Squadron also made first a minor and then a major move which was to take it permanently away from the eastern Mediterranean. The greater part of January was spent at El Daba getting used to the new Mark IX Spitfires, and training in dive bombing while still maintaining the eternal convoy protection patrols. Two aircraft were sent on temporary attachment to Deckherla on the 16th as insurance against enemy reconnaissance and another ten joined in an army exercise between 15th and 23rd January. When the squadron was ordered on the 27th to move to El Gamil airfield, near Port Said, spirits fell because this seemed a move away from rather than towards the fighting front. The

transfer was accomplished in heavy rain; operations from El Gamil became difficult during February because of flooding and on occasions El Ferdan had to be used. The squadron, however, had its first opportunity since the previous August to engage an enemy aircraft, when, on 21st February, Flight Lieutenant Gale[3] and Flying Officer Purdy[4] made 10 attacks on a Ju-88 and finally claimed it as destroyed after intercepting it at 28,000 feet near Port Said.

By this time No. 451 Squadron had been more than two years out of the front line, a situation which caused great concern to Group Captain W. J. Duncan, the Australian liaison officer in Cairo. On 18th February he wrote to Overseas Headquarters in London pointing out that because opportunities to engage in activities which could be classed as operational were extremely limited, it might take up to three years for individual pilots to complete the 300 operational hours then established as a normal tour of duty. He continued: "As the aircrew are all fighter types such employment results in a loss of enthusiasm. Amongst the ground personnel the loss of enthusiasm is much more marked and this together with conditions of service about which we have made many complaints in the past is resulting in the ground staff becoming very unhappy." He urged, as Wing Commander D. R. Chapman had done eleven months previously, that pressure be brought to bear to transfer the unit to more active employment. On the same day that this letter was written, however, Headquarters R.A.F. Middle East issued preliminary warning orders that No. 451, in company with Nos. 208, 237 and 238 Squadrons, was to move to Corsica while No. 7 Squadron S.A.A.F. was to prepare to join No. 7 S.A.A.F. Wing in Italy. To pilots and ground crew alike of the single-engined squadrons it seemed that the day of deliverance from inactivity had at last arrived, but preparations and the move itself took a further two months. The ground staff of No. 451 began to move to No. 22 Personnel Transit Centre at Almaza on 24th February but did not leave Egypt until 24th March. The pilots and aircraft remained at El Gamil throughout March but flew only two interception sorties; they then moved to Helwan on 1st April to stand by for the actual move. It was not only the truncated units themselves which anxiously awaited these orders, because H.Q. R.A.F. M.E. itself was experiencing difficulty in keeping in good order the aircraft of five squadrons divorced from their maintenance echelons, and sent several signals to H.Q. M.A.A.F. urging that the transfer be expedited. Finally, on 16th April, 16 Spitfires of No. 451 flew from Helwan to El Adem and on to Marble Arch. Next day they moved to El Aouina via Castel Benito, and finally on the 18th arrived safely at Poretta in Corsica, where they came immediately under control of No. 251 Wing as part of XII Air Support Command of M.A.T.A.F.

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[3] Sqn Ldr W. W. B. Gale, 406243. 451 Sqn (comd 1944). Bank clerk; of Geraldton, WA; b. Geraldton, 14 Jul 1920. Killed in action 17 Jul 1944.

[4] W Cdr G. H. Purdy, 408519; 451 Sqn. Clerk; of Carnegie, Vic; b. Carnegie, 7 Aug 1922.

The departure of these two squadrons left Australian interest in the eastern Mediterranean centred on naval cooperation and reconnaissance work. Both Nos. 454 and 459 Squadrons were controlled by No. 201 Group until 1st February when it amalgamated with Air Defence Eastern Mediterranean to form A.H.Q. Eastern Mediterranean, a change which had no effect on the operations of either unit, but represented simply a streamlining of control as more and more squadrons left the area. By March there were only about 60 Australian aircrew scattered among the non-Australian units of A.H.Q. Eastern Mediterranean and 16 of these also moved with their squadrons either to M.A.A.F. or to the United Kingdom in the first half of 1944. Of those that remained only 5 were day-fighter pilots, including Squadron Leader R. G. Foskett who commanded No. 94 Squadron at Benina; and only 3 were with the solitary night-fighter squadron. All the others were concerned in various degrees with the war at sea: 7 with No. 680 (photographic reconnaissance) Squadron; 12 with No. 38 (night G.R.) Squadron; 5 with Beaufighter day-strike units; 10 with No. 294 (air-sea rescue) Squadron. There were far more serving in quasi-operational formations such as transport or communication flights, or as instructors in operational training or other units, but their numbers grew steadily smaller as the continuing need for their activity lessened.

No. 459 Squadron at Gambut began the month quietly and flew only 45 patrols during January. The airfield was frequently unserviceable and for the first part of the month "B" Flight conducted all operations with Hudsons while "A" Flight converted to the new Venturas, and then these aircraft took over responsibility for patrols while "B" Flight similarly converted. February was busier for the Australians because, with the departure from Gambut of No. 15 Squadron S.A.A.F., they became responsible for both day and night patrols within their area. At the same time because of a new policy of hunting discovered or suspected U-boats to the limit of their endurance with all available aircraft, brief detachments of No. 459 were sent during February to LG-07 and St Jean. No positive success or even a sighting occurred, however, and the principal incidents of the month were the loss of two aircraft, one which crashed during unauthorised low flying at the end of a training exercise, and one which disappeared unaccountably while on patrol.

Indeed the Australians quickly came to regard the change to Venturas as a mixed blessing, for although faster, better armed and armoured than the Hudson, the new type had many teething troubles in a general reconnaissance role. There was much difficulty early with the air-to-surface vessel equipment so that several night patrols were entirely spoilt. Navigators complained of uncomfortable accommodation, the paucity of instruments and lack of facilities for taking drifts, all of which made the task of meticulous navigation over the sea difficult. The practical flight endurance time of the Ventura, a factor often of greater importance than speed or ranges in convoy work, was found to be less than that of the Hudson; and electrical equipment and turret controls gave some trouble. Further

doubts arose early in March when Flying Officer Ringland,[5] operating in bad weather from Ramat David in Palestine, sent a message that his starboard engine had failed and that his aircraft was losing height rapidly. Nothing more was heard and intensive searches the next day failed to find any trace of the Ventura. Crews gloomily compared the loss of three aircraft in two months, on ostensibly safe operations, with the absence of casualties during the Aegean bombing missions they had undertaken late in 1943.

March, however, brought compensation for No. 459 in the shape of vastly increased flying and some excitement. The convoy patrols continued as a basic task but twice detachments were sent to Ramat David to hunt a U-boat, another detachment for the same purpose went to Matruh West, and on the 21st a hunt began within full view of the Gambut control tower after a Greek fighter pilot had reported a U-boat close inshore. Each hunt lasted for several days and nights and several suspicious radar indications were investigated. The only actual sighting came on 7th-8th when Flying Officer Corcoran,[6] operating from Matruh, received a radar contact to the south-east of Crete and then discovered a U-boat which fired on his Ventura and dived before it could be attacked.

No. 459 had then been at Gambut for 15 months and was enduring its second rainy season. Towards the end of March 1944 the men encountered some of the vilest weather of their entire stay. Tents were destroyed, sections rendered homeless and aircraft and equipment damaged, although by prompt action in moving aircraft to the few available hard-standings there was no interruption of operations. Great joy was expressed on 1st April when news came that the whole squadron was to move to Ramat David. Most of the ground staff had spent nearly two years on desert airfields and their delight at the prospect of better living conditions in Palestine was shown by the speed and efficiency with which they struck camp. Six Venturas led by Squadron Leader McHale[7] flew to the new base on 2nd April and began operations the next day. Four trucks carrying signals and other essential equipment also left Gambut on the 2nd and made the difficult road trip of 950 miles including much desert waste in the remarkable time of two days and a half, the men arriving in an "unshaven, tired and generally dishevelled but happy condition". The heavier gear followed after a week of operations from both Gambut and Palestine and by the 16th the entire unit was settled in at Ramat David. As if to signal the departure of No. 459, an enemy U-boat torpedoed two ships north of Derna during the night of 16th-17th April so that six Venturas had to be sent hastily back to Gambut. Creeping line-ahead searches around the Cyrenaican "hump" in cooperation with naval vessels failed to discover any trace of the U-boat, but cover was given

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[5] F-O A. H. Ringland, 412033; 459 Sqn. Clerk; of Hamilton, NSW; b. Wauchope, NSW, 29 May 1918. Killed in action 3 Mar 1944.

[6] F-Lt R. R. Corcoran, 122938 RAF; 459 Sqn. Comedian; of London, England; b. Glasgow, Scotland, 2 Jan 1917. Killed in aircraft accident 19 Feb 1952.

[7] Sqn Ldr F. J. McHale, DFC, 402779; 459 Sqn. Trainee manager (chain-store); of Elizabeth Bay, NSW; b. Woollahra, NSW, 21 May 1915.

to several convoys which suffered no loss. Six other Australian Venturas replaced this emergency detachment at Gambut on the 22nd, but they remained only three days and then returned to Ramat David.

The Australians' main criticism of their new location was that there was a marked decline in shipping needing protection, and crews began to look askance at "convoys" of three or fewer small ships. On 12th May, however, Wing Commander Henderson informed his crews that the unit must be prepared to undertake day and night bombing. Some bombing practice had already been in progress, and flame-traps had been fitted to engine exhausts, but these preparations were intensified, together with formation flying and fighter affiliation exercises, to fit the men for their new role. While this was proceeding the squadron moved from Ramat David to St Jean which had been unserviceable for some time. Convoy escorts and independent sweeps continued throughout the month and the first bombing task was not notified until 29th May when six Venturas flew to Nicosia on Cyprus, refuelled, and left at 8 p.m. for a night attack against the east mole of Porto Mercantile at Rhodes. McHale led the aircraft, which flew at low level until just south of Castellorizo, and then, hugging the Turkish coast as far as Cape Marmarice climbed to an altitude of 9,000 feet to make their bombing run from the north. Each Ventura carried six 265-lb G.P. bombs and all found the target, but, owing to inexperience, the bombing itself was poor, four of the six sticks falling in the sea, one among headquarters and municipal buildings to the north-west, and one across the storage area due south of the port installations and warehouses which were the true target. Next night Flight Lieutenant Kroll[8] led a similar force against Rhodes, and this time most of the bombs fell on land but were chiefly in the storage area south of Acandia Bay. Intelligence sources later informed the Australians that these two attacks had destroyed a small ammunition dump, one anti-aircraft gun and two coastal defence guns—a fortuitous and random harvest.

Relatively few anti-submarine sweeps were required in the Levant during June 1944 and No. 459 settled down to a routine of bombing in the Aegean. Normally six strike and one stand-by aircraft were sent to the advanced base at Nicosia during daylight hours preceding each strike. Sometimes the stand-by aircraft also joined in the raid, all aircraft returning direct to St Jean if weather permitted. After 16th June bomb-loads were increased first to two 500 and four 265-lb bombs and finally to the maximum of four 500 and two 265-lb bombs. Porto Lago Bay on Leros was twice bombed early in the month (1st-2nd and 4th-5th June) and resulted in fairly satisfactory photographic evidence of fresh damage among quayside buildings at San Georgio and in seaplane hangars and installations at Lepida cove within the bay. The main target continued to be Rhodes where the administrative area was attacked on the 3rd-4th and 6th-7th, Calato airfield on the 7th-8th, and harbour installations on

[8] W Cdr L. N. Kroll, MBE, 404615. 37 Sqn, 1438 Strategic Reconnaissance Flt and 162 Sqn RAF, 459 Sqn. Clerk; of Newmarket, Qld; b. Brisbane, 14 Jun 1919.

the 11th-12th, against moderate opposition on each night but with no losses and with improved bombing results.

The Germans were determined to hang on to their Dodecanese outer defence screen despite increasing difficulty of running supplies to them in the face of air and naval attack. The constantly vigilant Royal Air Force reconnaissance aircraft over the Aegean reported a convoy of small craft and two destroyers entering Porto Lago on 9th June while four days later a more important convoy comprising the *Carola* (1,350 tons), *Agathe* (1,300 tons) and *Anita* (1,200 tons) with three escorts also arrived there. No. 459 Squadron was ordered to attack Leros but weather prevented a strike before it was appreciated that some at least of the larger ships would attempt to reach Rhodes. The *Carola* in fact unloaded at Leros, but the *Agathe* and three escorts duly arrived at Rhodes on 15th June after surviving two attacks on passage. Two daylight attacks by Baltimores of No. 15 Squadron S.A.A.F. and three attacks by the R.A.A.F. Venturas failed to prevent the *Agathe* from unloading, although bombs fell on either side of her berth during one night raid. The *Anita* also reached Rhodes on 22nd June and she with the *Agathe* was subjected to further bombing on 23rd-24th June, at dusk on the 25th, and again during the nights of 26th-27th, 28th-29th, 29th-30th June and 1st-2nd July. Some of these raids had to take place on moonless nights and the Australians had hurriedly to devise a flare-dropping technique for which the Ventura was not well suited. One aircraft was lost on 29th-30th June when anti-aircraft fire at Rhodes was particularly severe, but on no occasion was there any interference from the German Air Force. Much incidental damage was caused in and around the town of Rhodes but the ships were unscathed and slipped away during the night of 2nd-3rd July, the *Agathe* being sunk next day by Beaufighters but the *Anita* finding safe harbour at Leros on 3rd-4th July.

Seven more attacks were made by the Australians before 16th July when No. 459 withdrew from the line to re-equip with Baltimore aircraft. Five of the attacks were intended as routine attrition of enemy supply shipping, but the last two, made each time with eight aircraft, were diversionary raids to cover the British seaborne raid on Simi, north of Rhodes, where the small German garrison was captured in an action ending on 15th July. Thus on the 13th-14th the Venturas attacked Porto Mandracchio where light naval forces capable of interfering at Simi had recently arrived, while No. 38 Squadron bombed Calato airfield; on the next night No. 459 struck at Calato while the Wellingtons bombed Maritza airfield. There was no German reaction from Rhodes to the Simi operation and, although Calato could not be put permanently out of operation by raids of this size, the Venturas on the 14th-15th did cause five new craters east of the runway and also set alight a large dump of fuel and mixed stores on the western edge of the airfield. In many ways the last fling was the most effective of the night Ventura attacks, so that although a second aircraft was lost this phase of No. 459's activities ended on a satisfactory note. The switch to Baltimores obviously meant that the

squadron would henceforth operate in a day-reconnaissance role, probably taking up the task which No. 454 had just relinquished. Training continued with enthusiasm at St Jean until the end of July when orders were received for the squadron to move back to the desert, this time as was accurately foreseen, to Berca.

Meanwhile No. 454 Squadron continued throughout the first six months of 1944 to operate intensively, dividing its effort between patrols in the Aegean and convoy escort, the latter usually falling to the less experienced crews. The year began at Berca with cold, wet, cloudy conditions which although unpleasant did not prevent operations, and in fact in some ways were favourable to reconnaissance over enemy areas. The Australians also found that the general health of the unit improved considerably at Berca, the incidence of the diehard complaints of diarrhoea and desert sores falling sharply. January was marked by constant effort rather than any outstanding success, for although the Baltimores patrolled the Aegean on practically every day they saw little except small caiques, an occasional enemy naval auxiliary and a few seaplanes, fighters and transport aircraft. The Baltimores were fitted with long-range tanks and had no bombs, so that their function was purely reconnaissance.

The suspected increase in enemy radar and observation posts on the outer ring of islands had already led the Australians to vary their patrols so that the relatively few enemy fighters could not be alerted in time to intercept. Thus for a few days flights would be made from El Adem, through Kaso Strait and then anti-clockwise through the Aegean, but as soon as any enemy reaction was expected, the sorties would begin at Gambut and proceed through the Kithera Channel and then clockwise. The Germans had only a few medium sized supply ships in the Aegean and husbanded them carefully, taking every advantage of evasive routeing and concealment. The Baltimores, therefore, had to search thoroughly and approach closely to many defended anchorages and were frequently fired upon, especially when near Rhodes, Leros, Milos or Stampalia. Enemy aircraft, however, were less frequently encountered, partly because the short-range fighters were consciously avoided and because the twin-engined aircraft were rarely employed by the Germans except when important enemy shipping was actually at sea. In fact many Australians saw far more Allied than enemy aircraft over the Aegean.

The Baltimore patrols discovered several worthwhile targets early in February at Porto Lago Bay, Port Vathy, Naxos and Suda Bay, and on the basis of these and other reports, attacks by Mitchells, Wellingtons and Beaufighters were quickly made, claiming one hit on a ship near Piraeus and damage leading to the beaching of the *Citta di Savona* in Porto Lago Bay. Then for a fortnight little shipping of importance was seen and on 20th February Squadron Leader D. C. Beaton was sent on a photographic reconnaissance of a new area, the west coast of Greece, but the only ship he discovered there was a small schooner. He did, however, sight four Ju-52 aircraft on an Araxos airfield and, after strafing them, he went on to attack and halt a train near Kavasila and to scatter

a railway repair gang. Next day a similar flight was made ahead of Beaufighters of No. 27 Squadron. Only two caiques were found but the Beaufighters duly received the sighting reports and attacked, setting both on fire.

Also on 21st February Squadron Leader V. Cashmore found the *Livenza* (5,300 tons) in Milos Harbour and this started an enthusiastic general hunt to the death, because this ship was the enemy's largest available supply ship in the area. It was fairly certain that it would not tarry at Milos, but on the 22nd, while one Baltimore went there to confirm that she had indeed sailed, other aircraft made a wide search. Warrant Officer McMurray[9] quickly reported a convoy of one merchant vessel and two naval escorts attended by several aircraft in a position 10 miles south of Folegandros in the Cyclades. He also saw two more escort vessels in Siros Harbour. The aircraft originally sent to Milos then also reported the convoy which thereafter was successfully shadowed by three more Baltimores sent out by No. 454 Squadron. The last of these, flown by Flight Sergeant Rawlings,[1] failed to return and was presumably shot down by the enemy air escort which continued to grow in size throughout the day. Reports from the other Baltimores left no doubt that the ship was making at full speed for Heraklion in Crete, and a striking force of 4 Mitchells and 26 Beaufighters (of mixed types including fighters, anti-flak, rocket-projectile and torpedo aircraft) was sent out to destroy it. The Mitchells steered to the west of Crete while the Beaufighters, less six which failed to join company, approached from the east and both parties met at 2.15 p.m. just as the enemy convoy was near Dia Island just north of Heraklion. The Mitchells drew away the main enemy air escort of 4 Ju-88's and 6 Me-109's while the Beaufighters, faced by heavy ground fire and by 6 Arado float-plane fighters, swept in to secure torpedo hits on the *Livenza* and one of her escorts.

The success gave a stimulus to the crews performing the Aegean patrols as it was thought that the enemy would soon make another attempt to supply Crete. Milos was watched closely because it was a natural staging point for ships, and it was soon apparent that the enemy was intensifying anti-aircraft and fighter measures to defeat Allied reconnaissance. On 27th February Flying Officer Dawe[2] failed to return from a sortie up the west coast of Greece and another Baltimore was intercepted by two Me-109F's near Antikithera and was severely damaged in a prolonged running fight, although the pilot was able to crash-land safely at Derna. Unsuccessful searches for possible survivors from Dawe's crew continued for three days side by side with a new spate of activity in the western Aegean consequent on reports that a new enemy convoy was ready to sail from Greece. On 29th February three Baltimores searched the Cyclades Islands and found no ships but Flight Sergeant Kempnich,[3] when checking

[9] F-O D. H. McMurray, RNZAF; 454 Sqn. Storekeeper; b. Glasgow, Scotland, 8 Dec 1912.

[1] F-Sgt B. E. Rawlings, 413504; 454 Sqn. Pearl fisheries inspector; of Darwin; b. Bexley, NSW, 10 Nov 1922. Killed in action 22 Feb 1944.

[2] F-O A. W. Dawe, 416940; 454 Sqn. Window dresser; of Goodwood Park, SA; b. Parkside, SA, 25 Mar 1913. Killed in action 27 Feb 1944.

[3] F-Sgt A. W. J. Kempnich, 413608; 454 Sqn. Student; of Rose Bay, NSW; b. Sydney, 11 Jun 1918. Drowned 9 Mar 1944.

the shipping lanes north-west of Milos, encountered seven Ju-88's, one of which attempted to attack. This report raised the possibility that the Ju-88's were attempting to clear the passage of ships which were probably near Hydra, and accordingly another Baltimore was sent there and duly found 4 merchant ships (each of approximately 1,500 tons) with 3 escort vessels. Escorting Ju-88's chased off the Baltimore but not before it had transmitted a sighting report which in turn was picked up by Wing Commander Coates.[4] He approached the position by a northerly round-about route, avoiding one group of escorting enemy fighters and checked the position of course and speed of the convoy which was then between Hydra and Agios Georgius. There was a close escort of four Ju-88's and some Arados and the former pursued Coates as far as Antikithera. Further searches for this convoy next day by Baltimores and Beaufighters were unsuccessful, and it was presumed that, knowing it had been discovered, it had returned to harbour.

A heavy burden fell at this time on the shrunken German Air Force which, besides its convoy escort tasks, was also called on for the protection of scattered airfields, lines of communication and harbours, and also attempted to maintain reconnaissance of the Delta area. No. 454 had a sharp reminder of enemy capabilities on 3rd March when two Baltimores sent out on early morning patrols failed to return. One of them, piloted by Kempnich, had time to send an "enemy fighter" signal and this was construed as indicating a German convoy at sea.

When investigating this convoy, in Milos Harbour at 11 a.m., Kempnich had been forced to descend to an altitude of 1,000 feet to avoid flak and was then attacked by two Me-109's. The crew intercommunication system was shot away during the first attack, and after three more attacks the port engine was dead and the starboard engine on fire. Kempnich ditched about 40 miles south of Milos and, although badly burned about the head and neck as he swam clear of a pool of burning petrol, he secured the aircraft dinghy and with the help of his wireless-air gunner Warrant Officer Seymour[5] rescued the badly wounded navigator. Unfortunately all rations were lost except one small bar of chocolate and, as the dinghy drifted helplessly day after day, Kempnich, although himself in pain, showed extraordinary qualities of leadership in tending for and encouraging his injured companions. Several times the dinghy was paddled close to various islands but on each occasion strong currents drove it out to sea again. At dawn on the sixth day when both his comrades had collapsed into a delirious state, and the dinghy was again relatively near a small island close to Antiparos, Kempnich decided to swim ashore for help but the task was too much for his badly sapped strength and he perished in this gallant unselfish act to save his friends, both of whom survived.

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[4] W Cdr J. A. G. Coates, DFC, 74699 RAF. 608 and 203 Sqns RAF; comd 454 Sqn 1943-44. Student; of Rugby, England; b. Rugby, 28 Sep 1920.

[5] W-O J. D. Seymour, 409187; 454 Sqn. Poultry farmer; of Boronia, Vic; b. Maryborough, Vic, 31 Aug 1921.

When the convoy that had been in Milos on the 3rd was next discovered, near Santorin on the 6th, the small strike force of South African Marauders suffered heavy losses from fighter attacks. A final attempt on 7th-8th March by Wellingtons also failed to prevent this convoy from reaching Crete. A lull then fell over Aegean operations and the Baltimore effort was applied increasingly to the south and east coasts of the Peloponnese, where the enemy were thought to be erecting caique slips at high speed and might also be assembling motor barges from prefabricated parts. Particular attention was paid to Spetsai, Monemvasia, Kalamata, Githion and Navarino, but little was seen until 25th March when a tanker-like vessel was reported at Monemvasia. After a further check next morning that this ship was still in harbour, four Baltimores led by Coates set out carrying bombs for the first time for many months. They were to act as a diversionary force for Beaufighters also detailed to attack, but the entire force was recalled after an hour because of very bad weather. Comparable disappointment came several times that month to crews sent to various bases to join in concerted U-boat hunts, because none had the positive satisfaction of sighting or attacking.

Early in April Wing Commander Coates left No. 454 to take up a staff position and Wing Commander Moore[6] who had already completed one operational tour with the squadron and served as flight commander and squadron leader (flying) took over command. In better weather marred only occasionally by the khamsin, the unit flew 173 operational sorties during the month, and on the 24th had 16 aircraft on patrol, an automatic compliment to the constantly fine effort of the ground crews who for many months had kept the unit's serviceability record higher than that of any neighbouring squadron. The routine patrols around the Peloponnese brought only occasional sightings of major vessels but were the bases on which Beaufighters reaped a steady harvest of caiques, barges and other small ships. Their value to the general campaign was constantly emphasised by A.H.Q. Eastern Mediterranean, while the enemy was not slow in concurring by his action in increasing the anti-aircraft guns and fighter patrols in this area. Several Baltimores were hit by gunfire or chased away but there were no losses.

Enemy defences also seemed stronger in the central Aegean and especially at Leros, where a convoy was expected to arrive early in April. The first aircraft sent there on 2nd April failed to return or make any report, and Flight Sergeant Mitchell[7] who went there next day was met by very concentrated fire as he attempted to fly near Porto Lago Bay. The same general conditions continued throughout May when No. 454 flew an identical number of sorties—173. The Aegean seemed particularly empty of shipping, although from the 26th to the end of the month special efforts were made to locate a convoy which had been assembled in Piraeus and was then ready to sail. An average of five Baltimores

[6] W Cdr M. J. Moore, DFC, 402804; 454 Sqn (comd 1944). Schoolteacher; of Taree, NSW; b. Taree, 20 Nov 1911.

[7] F-O V. C. Mitchell, 412604; 454 Sqn. Shop assistant; of Kyogle, NSW; b. Ballina, NSW, 20 Oct 1920.

scoured the sea lanes each day, and four more stood by bombed up to join in any striking force sent out, but the convoy remained obstinately in port. Earlier in the month the scope of No. 454's activities had been extended by flights up the west coast of Greece as far as Araxos, and by bombing training which culminated in raids by small formations against Kalamata on 14th, 18th and 21st May.

The week of concentrated reconnaissance effort over the western Aegean late in May at last bore fruit when a Wellington of No. 38 Squadron at 3 a.m. on 1st June reported that 3 enemy ships were at sea with the unusually strong escort of 4 destroyers, 4 corvettes and 2 E-boats.[8] The Australian part in the operation started at dawn when Baltimores were sent to the western and central Aegean and soon located and reported the convoy near Paros on a south-easterly course. Six more Baltimores were sent out successively to shadow, and these hung on grimly to the skirts of the convoy although all were seen and pursued by enemy fighters. From the regular reports sent in throughout the day the enemy destination was obviously Heraklion and the timing of the strike to be made by a motley force gathering at Gambut was greatly simplified. Flying Officer Ennis[9] in particular earned special praise for the way in which he carried out his part in this operation which was marred only by the loss of the last crew sent out, whose Baltimore was shot down, but only after they had duly confirmed the enemy progress towards Crete. Soon after 5 p.m. the striking force of 18 Baltimores (including 3 of No. 454 Squadron), 12 Marauders, 26 Beaufighters and 19 single-engined fighters set off and was in position to attack by 7 p.m. The R.A.A.F. Baltimores flying in the first formation straddled the *Gertrude* (1,960 tons)[1] and claimed a direct hit on her stern, and the remaining Baltimores achieved near misses on the *Sabina* (2,300 tons). Both these ships were attacked and probably hit by a follow-up strike of Beaufighters, while the original force of Beaufighters which had been in the van had already damped down the flak from the escort vessels and had left the *Tanais* (1,500 tons) burning fiercely. The convoy struggled on in its damaged state to Heraklion but was again attacked that night by Liberators and Wellingtons. Photographic reconnaissance showed the *Gertrude* on fire and the *Tanais* still in port but no sign of the *Sabina* which was later presumed lost at sea. A final strike was made on the evening of 2nd June by Marauders and Baltimores and again three aircraft of No. 454 Squadron were in the force. Very intense anti-aircraft fire which holed nine of the attackers did not prevent a deliberate run across the harbour at an altitude of 12,000 feet. Photographic reconnaissance early on the 3rd showed the *Gertrude* sunk, a destroyer capsized at her moorings, and the *Tanais* afloat but "much blackened as if by fire".[2]

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[8] Motor torpedo boats some 100 feet in length with a maximum speed of 30-34 knots. Besides carrying two torpedoes, normal armament consisted of two cannon and one or two machine-guns.

[9] F-Lt J. R. Ennis, DFC, 420339; 454 Sqn. Accountant; of Sydney; b. Drummoyne, NSW, 22 Aug 1914.

[1] This was the *Gerda Toft* masquerading under an assumed name.

[2] *Tanais* left Heraklion for Piraeus on 8th-9th June and was sunk by a British submarine.

After the loss of this convoy the enemy made no immediate attempt to supply its garrison on Crete, and positive interest in the anti-shipping war was centred in the eastern Aegean, where No. 459 Squadron was then joining in the offensive. The Baltimores tended to concern themselves more and more with the Peloponnese and Sea of Crete areas, especially as some of the aircraft, now that they carried bombs, had insufficient range to cover the whole Aegean. The best fruits of their reconnaissance came on 17th June when Beaufighters severely damaged two large caiques and landing-craft out of a group of minor vessels reported by a Baltimore about 20 miles east of Cape Maleas. Several times during June the Australians sent small formations to bomb shipping and harbour installations at Pilos, Kalamata and Navarino, and on 27th June three joined with No. 15 Squadron S.A.A.F. to attack an ammunition dump near Heraklion in Crete. A few similar bombing attacks and the usual reconnaissance and convoy escort tasks were fulfilled during the first 12 days of July when the role of the squadron underwent a sudden and complete change. No. 454 was ordered to transfer immediately to Desert Air Force in Italy for ground-support duties. A road convoy left for the Delta on 15th July, while at Berca new Baltimores were taken on charge and prepared for operations. On 25th July Wing Commander Moore and Squadron Leader Cashmore led the aircraft in two boxes of eight and nine respectively via Luqa on Malta, and Bari to Pescara which was to be their new base. Much of the squadron equipment was ferried across in transport aircraft, but the main road party did not leave Alexandria until 27th July and finally reached Pescara on 11th August.

Whereas in the eastern Mediterranean during early 1944, squadrons engaged in naval cooperation duties found convoy escort dull, and looked increasingly to Aegean anti-shipping patrols for excitement, conditions were very different in the western basin where No. 458 Squadron R.A.A.F., commanded by Wing Commander Dowling,[3] continued to be the main Australian contribution to Mediterranean Allied Coastal Air Force. There was tremendous traffic through this area not only of convoys routed through to the Middle East and India but also of supply and troop convoys to and from Italy, and there were frequent moves of naval squadrons and fleet units. Some of the convoys were very large (up to 85 ships) and, with relatively little room to manoeuvre, were tempting targets for German U-boats based on Toulon or Spezia as well as long-range aircraft from southern France. No. 458 therefore, although it had a purely defensive role, was fully aware that although two U-boats had been sunk by naval forces during December 1943, sufficient remained to demand the utmost vigilance from all anti-submarine units. In January the squadron was informed that it would soon be equipped with Wellingtons carrying Leigh lights and improved radar, so that it would then operate, mainly as a night-patrol unit.

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[3] Gp Capt J. Dowling, AFC, 263. Comd 458 Sqn 1943-44. Regular air force offr; of Beaufort, Vic; b. Stawell, Vic, 25 Nov 1916.

The conversion was hardly begun when No. 458 was caught up in the preparations for the Anzio landing. On 8th January 1944 5 Wellingtons escorted a naval force of 3 battleships, 2 aircraft carriers and 12 destroyers, and crews rightly judged that something important was impending. On the same day 13 aircraft and 16 crews were sent to Blida, near Algiers, for what was described as "the biggest swamp hunt yet". Three U-boats were thought to be at sea between Ibiza and Cape de Gata in favourable positions to intercept ships serving the Anzio operation, and all available aircraft from Gibraltar and Algeria were to cooperate with naval vessels in destroying the enemy or at least preventing him from attacking. The organised hunt lasted five days during which No. 458 flew 36 sorties, made four sightings, and launched two attacks against U-boats. Both the attacks were made by Pilot Officer Markey,[4] the first just before 8 a.m. on 9th January when he straddled a submerging U-boat 30 miles south-west of Alicante, and the other about 6 a.m. on 10th January when, in moonlight, he again achieved an apparent straddle near Denia. Neither attack was lethal, in fact the second target was probably the same U-boat, reported again by No. 458 near Denia during the evening of 10th January, but the general effect of the intensive flying in this area was to pin down the enemy.

Later in January, after the landing at Anzio, six Wellingtons were sent to Malta for a U-boat hunt off Sicily but again no positive success was claimed. During January No. 458 flew 104 sorties and a similar effort followed in February when there were again two major detachments. The first of these was to Grottaglie in Apulia where nine Wellingtons were sent to maintain night standing patrols over the Strait of Otranto, the day searches being conducted by Cant seaplanes of an Italian squadron. The weather was bad and patrols were carried out in snow, sleet and very high winds, so that crews were pleased when they were withdrawn after three nights. The other detachment was to Ghisonaccia in Corsica, commencing on 13th February after a U-boat had been reported near Elba. One Wellington was lost on the initial flight from this base but the detachment was built up to a strength of six aircraft and remained there for two months. The U-boat scare quickly faded out, as there was much activity by enemy barges and small tankers between Leghorn and ports in southern France, the Wellingtons were equipped with bombs and given a roving commission to destroy any coastal shipping they could find and to attack bridges and marshalling yards in northern Italy as alternative targets.

Meanwhile the main body of the squadron remained at Bone, often operating under difficulties during the winter months. Flying was frequently held up by strong cross-winds and torrential rains which flooded the runways; once seven aircraft were unserviceable because their flaps were damaged by water. Nevertheless a high degree of operational effort was maintained, and in March there was an average of two aircraft

[4] F-O J. R. Markey, 403429; 458 Sqn. Salesman; of East Maitland, NSW; b. Mosman, NSW, 28 May 1912. Killed in action 23 Jan 1944.

escorting convoys, another two on independent sweeps or anti-submarine hunts, and one on anti-shipping reconnaissance (from Corsica) every night. Neither the close escort nor the "swamp" hunts brought any chance for the Wellingtons to attack, although naval forces sank four U-boats in the western Mediterranean that month.[5] Once again crews of No. 458 had to console themselves that safe passage of convoys fully justified their painstaking searches and patrols. The main hunt during March began on the 17th after a naval vessel had been torpedoed while escorting a convoy, and No. 458 flew 37 sorties before the search was abandoned on the 21st. Although the Australians saw nothing, a Wellington of No. 36 Squadron R.A.F. made one depth-charge attack on the night of 17th March and there was no further interference with the convoy. Similarly on 28th-29th March a R.A.A.F. Wellington received a suspicious radar contact while escorting a westbound convoy of 56 ships, investigated the position with its Leigh light, and thoroughly combed the area until the convoy had passed from the danger zone.

At Ghisonaccia crews were lodgers on an American day medium-bomber unit and had some early difficulties with contaminated petrol, undue wear of tyres on gravel runways unsuitable for heavily-laden aircraft, general maintenance, and the use of American-type bombs. They enjoyed a more personally satisfying role but the attacks on shipping were inconclusive except on 8th-9th March when two ships were claimed to have been damaged near Pianosa and a second strike aircraft straddled a ship near San Vincenzo. Attacks were made from 4,000 feet with sticks varying from 6 to 18 (maximum load) 250-lb bombs which gave good chances of success, but in practice alternative land targets were attacked more frequently than shipping. Against somewhat nebulous gains the detachment had to set three aircraft damaged by anti-aircraft fire, one lost through engine trouble while returning to Bone in March, and another which ditched in the sea 20 miles west of Leghorn soon after midnight on 7th April. On this last occasion two of the crew survived an ordeal in which six men attempted to hang on to a small K-type dinghy during the cold night with a rough sea running and breaking over their heads; these two finally reached the island of Gorgona.

The Corsica detachment returned to Bone in mid-April, but 10 Wellingtons were immediately sent on 17th April to Malta to work with No. 248 Wing. They remained there for a month during which six of the aircraft again went to Grottaglie, this time for five days. This detachment at Malta, led by Squadron Leader McKay,[6] was very active but all its patrols were devoid of incident. Operations from Bone, however, gave a fillip to aircrew early in May when, after a U-boat attack against a westbound convoy in an area north of the Gulf of Bougie, No. 458 and No. 17 Squadron S.A.A.F. were ordered to cooperate with five destroyers

[5] Two more were destroyed by an American bombing attack on Toulon on 11th March 1944.

[6] Sqn Ldr J. A. F. McKay, 64938 RAF; 458 Sqn. Manager; of Colchester, England; b. Ealing, London, 22 Feb 1913.

in a "swamp". This began on 3rd May and the Wellingtons had flown six patrols before *U371* was finally depth-charged to the surface and sunk by shell fire from the destroyers on 4th May. A larger U-boat hunt developed between 12th and 19th May south-west of Sardinia, with Venturas of No. 17 S.A.A.F. and No. 500 R.A.F., Hudsons of No. 608 and Wellingtons of Nos. 36 R.A.F. and 458 R.A.A.F. Squadrons all assisting the naval vessels to exert unrelenting pressure. The Australian part in this operation amounted to 22 sorties with one very accurate (though not lethal) attack by Flight Lieutenant Knight[7] just after a U-boat had submerged. Another attack was made on the 12th-13th but there was some doubt whether the target was in fact a submarine, and on the 14th-15th an attack was made, which fortunately failed, against a friendly submarine whose presence in the area had not been forewarned. No. 458 was heartened by the destruction of *U616* on 17th May and *U960* on 19th May during the progress of this operation but could claim only very minor credit. When it was known that *U731* had been sunk in the Strait of Gibraltar on the 15th, and *U453* off south-west Italy on the 21st, it was appreciated that the enemy, having lost five U-boats in less than three weeks in the western Mediterranean, would not be able for some time to maintain his previous threat to Allied shipping.

On 20th May, No. 458 Squadron was told that its move to Sardinia, which had been mooted as early as the previous September, was at last to take place. The first seaborne party left Bone on 27th May aboard the French destroyer *Tigre*; the heavy equipment was embarked at Bizerta on 5th June, and by the 11th all the aircraft and crews had flown over to the new base at Alghero on the north-west corner of Sardinia. The month was a quiet one for No. 458 despite the momentous events in France and Italy. Only 45 sea patrols, all devoid of incident, were flown. A possible hint of yet another change of role came with a M.A.C.A.F. directive that the Australians should begin training for night-illumination duties so that they could cooperate in shipping strikes with No. 272 (Beaufighter) Squadron.

During the first half of 1944 there were over 100 Australian individuals scattered among the various units of M.A.C.A.F., but the only significant groups were with Nos. 36 and 221 Squadrons (Wellingtons) and No. 14 Squadron (Marauders), all of which were doing tasks almost identical with those of No. 458. No. 36 shared the night convoy escort duty in the western basin, No. 221 was permanently based at Malta to cover the central Mediterranean and lower Adriatic areas, while No. 14 engaged in armed anti-shipping reconnaissance and, like No. 458, maintained detachments during this period at Ghisonaccia and Grottaglie and had moved to Alghero by the end of June. Other Australians, varying in number from one to seven, served with 15 different fighter, night-fighter and day-reconnaissance squadrons. The work of all was marked more by persistence

[7] Sqn Ldr R. G. Knight, DFC, 403111; 458 Sqn. Engineer; of Wollstonecraft, NSW; b. Matsue, Japan, 26 Nov 1912.

than any outstanding success and, when enemy pressure flagged towards the middle of 1944, many were transferred from M.A.C.A.F. with their units to M.A.T.A.F., Balkan Air Force, Gibraltar, or the United Kingdom.

Prime interest continued to be focused on the offensive employment of aircraft in the central Mediterranean, where Australians although more numerous were proportionately a smaller part of the total effort than in the eastern Mediterranean or in M.A.C.A.F. Within M.A.S.A.F., which had the dual function of carrying strategic air bombardment deep into Germany and the Balkans, and of collaborating with the land campaign in Italy, Australians were confined to the operational squadrons of No. 205 Group. In M.A.T.A.F. they were particularly active in units of Desert Air Force while others began to appear in the composite force built up in Corsica in readiness for the proposed invasion of southern France. The distribution of Australians permits their operations to illustrate some of the main features of air warfare in Italy during 1944, but it should be borne in mind that the entire heavy-bomber and medium-bomber daylight force which did much to set the stage was entirely American.

By the end of 1943 the Allied land drive towards Rome had been completely halted by the strong defences of the Gustav line. Allied strategy, which at the Cairo conference had envisaged a landing in southern France to coincide with the main OVERLORD assault, assumed that by May positions and air bases at least as far north as Rome would be available. Thus the obvious major task early in 1944 would be to break the Winter and Gustav lines, either by direct assault or by outflanking seaborne landings. Plans for an assault south of Rome had been prepared early in November 1943 as the final phase of a three-pronged drive: first the Eighth Army would surge forward to Pescara; then the Fifth Army would drive up the Liri and Sacco Valleys to Frosinone and finally the seaborne assault would secure the dominating Colli Laziali, so that the enemy would be forced to retire precipitately to positions north of Rome. Neither the Eighth Army attack against the Sangro on 26th November, nor the Fifth Army attack towards Frosinone on 1st December, made sufficient progress to warrant the risk of committing the seaborne assault in its original form. New plans for a more ambitious amphibious attack with an initial strength of at least two divisions were presented on 25th December at a conference held at Tunis, and after much juggling with resources crystallised into the Anzio-Nettuno operation timed for 22nd January and to be preceded by a renewed Fifth Army offensive towards the Liri Valley.

The air tasks associated with Anzio were to continue a high level of close support for both the Fifth and Eighth Armies and to paralyse at least temporarily the enemy air force and his supply routes. For the first fortnight in January American medium and light bombers made frequent attacks against railway yards and bridges and they were then joined for the final week of all-out effort by the heavy bombers of M.A.S.A.F.



(R.A.A.F.)

A Lancaster of an Australian bomber squadron showing its forward armament and the bomb aimer's position in the nose of the aircraft. The stars on the fuselage represent the number of missions carried out by the aircraft.



(R.A.A.F.)

A 4,000-lb "cookie" and a load of incendiaries dropping from a Lancaster of Bomber Command.



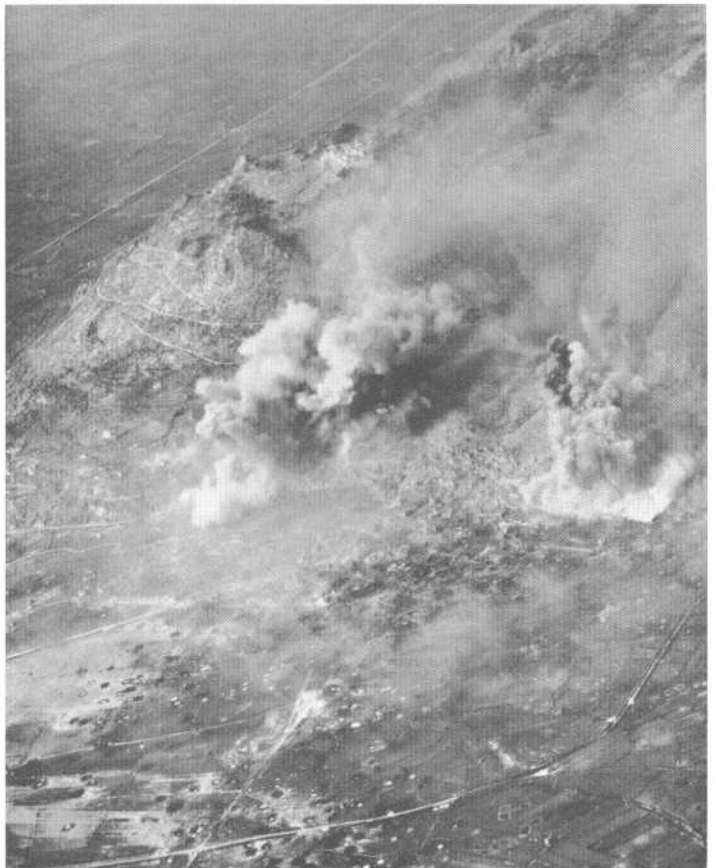
(*R.A.A.F.*)

Sgt N. Saville and F-Sgt R. Moore of No. 3 Squadron inspect the potato harvest on a farm close to the squadron's landing ground in northern Italy, 1944.



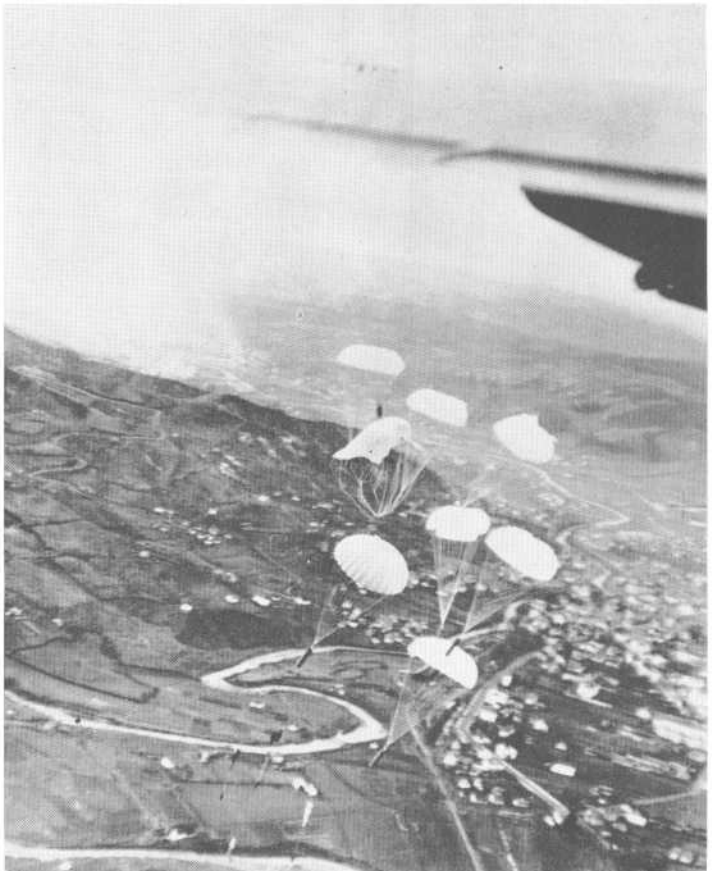
(*R.A.A.F.*)

Preparing breakfast for No. 3 Squadron under the critical eye of F-O R. Dent at an open-air kitchen in Italy.



(*R.A.A.F.*)

The town of Cassino, Italy, under attack in 1944. Top centre is the monastery which was destroyed by Allied bombing on 15th February 1944.



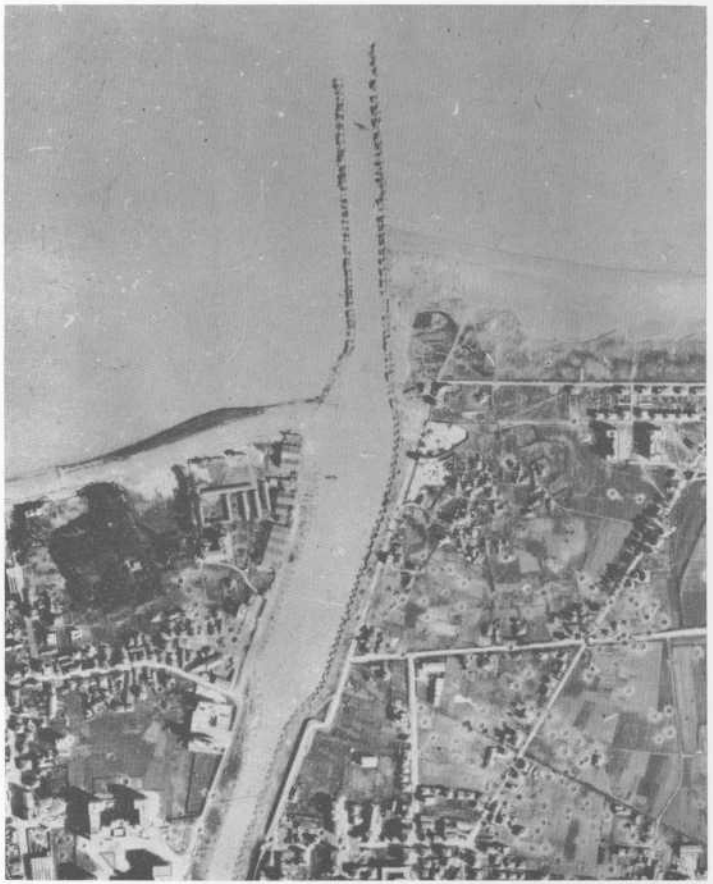
(*R.A.A.F.*)

Supply dropping to partisan forces in Yugoslavia.



(*R.A.A.F.*)

Damage to bridges over the Tordino River at Giulianova, Italy. The road bridge has been completely cut and the railway bridge severely damaged, thus hampering German supply.



(*R.A.A.F.*)

Pescara, a town on the east coast of Italy, lay in the path of the Eighth British Army. Apart from the damage caused by Allied air attacks the Germans systematically demolished the mole forming the artificial harbour.

During the whole period over 5,000 tons of bombs were dropped, but the Wellingtons played only a small part. For the whole of the first week in January the squadrons of No. 205 Group lay idle on waterlogged airfields, and then sent 20 aircraft to bomb the Reggio Emilia aircraft factory on the 7th-8th and 41 to attack Villaorba airfield on 8th-9th January. Targets outside Italy were chosen at Sofia (10th-11th), Piraeus (11th-12th) and Salonika (15th-16th) and on the last of these nights nine Wellingtons also attempted to cut railway lines between Rimini and Ancona. Despite continuing bad weather limited operations were possible during five of the six nights preceding the Anzio landing and Villaorba airfield (16th-17th), Pisa marshalling yards (17th-18th), Pontassieve marshalling yards (18th-19th), Cecina railway bridge (20th-21st) and the Fiume torpedo factory (21st-22nd) were all attacked.

The results of these bombing attacks by never more than 40 aircraft were of themselves only small but it was hoped that the mere presence of the Wellingtons over the Pisa-Florence-Rome triangle would hamper enemy efforts to repair damage caused by the much heavier American attacks. The total result of the combined offensive was far short of the ideal of total interdiction, but considerable delays were caused to enemy movements. The Germans had ample labour and materials in north Italy so that damage from raids was often repaired in from one to three days, but in central Italy the frequency of attack especially on the key centres of Orvieto, Orte and Terni prevented all but a trickle of rail traffic to Rome. In the Adriatic sector Pescara was the German railhead, and in the centre Orte, further movement towards the front line being conducted by road transport.

Nearer the battle area proper the fighter-bombers and light bombers also attempted to disrupt or delay enemy supply routes. This primarily involved XII Air Support Command in the western sector, but because the Eighth Army battle line was static both ground and air resources were moved from the Adriatic sector to assist the Fifth Army before the Anzio landings began. Even No. 239 Wing which remained at Cutella and Celone began to apply much of its effort to the impending battle west of the Apennines. There were few requests for close-support duties early in January and the Kittyhawks of Nos. 3 and 450 Squadrons divided their sorties between armed reconnaissance of roads behind the enemy line and anti-shipping strikes at Makarska, Sibenik, Zaton and other harbours in Yugoslavia. Both Australian squadrons joined on 13th January in a successful attack against a tank repair depot at Loreto, and Flight Lieutenant Doyle, one of the most experienced pilots of No. 3, dropped the first 1,000-lb bomb carried by the squadron. Daylight patrols having revealed little movement behind the enemy lines at this time, on 15th January before dawn, six Kittyhawks of No. 3 set off to seek German vehicles before they could take cover. The plan failed because again no worthwhile traffic was seen on the roads although a small railhead south-east of Macerata provided a suitable alternative target. On the same day Flight

Lieutenant Robertson[8] led a formation of 12 aircraft of No. 450 which claimed direct hits on a 3,000-ton ship in Sibenik Harbour.

The most successful attacks made by the Australians in support of the land campaign came with two attacks on rail centres at Sulmona on 19th January and Popoli (next day), both being effectively blocked just before the main Fifth Army drive was to open on the 20th. The Kittyhawks, however, spent the next two days attacking Yugoslav ports, aircraft of No. 3 hitting a large schooner at Ploca on the 21st. Flying Officer H. R. Hannaford of No. 450 scored one of three direct hits on a cruiser-like vessel in Zara on the 22nd, when Flight Sergeant Peters[9] of No. 112 claimed the sinking of a merchant ship. The ability to divert so large a part of the fighter-bomber effort from Italian targets was a measure of the general success already achieved against enemy communications.

As preliminaries to the Anzio landings, the French corps attacked on 12th January on the right flank of the Fifth Army, and on 15th January II American Corps captured Monte Trocchio, two miles south-east of Cassino, the last barrier before the entrance to the Liri Valley. Two days later X Corps attacked across the Garigliano towards Castelforte, and on the 20th General Wilson, now confident that both air and ground preparations were bearing fruit, launched II American Corps across the Rapido River in a full-scale offensive to preoccupy the whole reserve forces of the *Tenth German Army*. Very obstinate enemy resistance halted this offensive before the Gustav line could be breached and a stalemate existed on 22nd January when the 3rd American Division, some Rangers, and part of the 1st British Division landed between Anzio and Nettuno against slight opposition. Once again the inestimable advantage of tactical surprise had been gained by denying air reconnaissance to the enemy, and with constant patrols of fighters over the invasion fleet and beach-head, the Allied build-up on shore went ahead unhurriedly and without serious opposition for several days. But although "the landings had proved a model of amphibious operations"[1] VI Corps made little attempt to exploit the position by an all-out drive while it still had full initiative. With enemy reinforcement routes from the north partly blocked and the *Tenth Army* engaged in a bloody battle along the Gustav line, there were a few days in which decisive action was possible. The Germans themselves have since expressed surprise that VI Corps did not advance immediately to Valmontone, thus cutting off the main road and rail communications of the enemy southern flank. The VI Corps, however, felt that this was too risky because of the failure of the Fifth Army offensive and a decision was made to await further reinforcements before attempting an advance. This created the vicious circle of events by which the enemy was also given time to build up containing forces at a rate which matched

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[8] F-Lt C. W. Robertson, DFC, 400486. 451 and 450 Sqns; comd 451 Sqn 1945. Station hand; of Jerilderie, NSW; b. Gardenvale, Vic, 16 Aug 1917.

[9] F-Lt B. H. Peters, DFM, 409439; 112 Sqn RAF. Clerk; of Kew, Vic; b. Kew, 20 Oct 1922.

[1] *Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on The Italian Campaign 8th January-10th May 1944.*

Allied seaborne supplies. While the Allies remained methodical and played for safety, Kesselring swiftly detached units from both the Fifth Army and Eighth Army fronts and rushed reserves from north Italy, France and Yugoslavia. *Fourteenth Army Headquarters* assumed control of all enemy forces opposing the bridgehead.

During the week of only limited ground action in the Anzio beach-head, Allied air forces were committed on an impressive scale limited only by unfavourable weather. Air defence was well maintained from air-fields in the Naples area, so that although the German Air Force itself had brought back a force of long-range bombers to northern Italy, actual Allied losses either in ships or supplies were very light. The enemy bombers could no longer, as at Salerno, operate extensively by day, and although nearly 150 bomber sorties were launched on 23rd-24th January, this effort rapidly fell away in strength, while the accuracy of bombing never attained a high level. The Germans surprisingly failed to make any increase in their fighter-bomber strength, so that, although some did operate by day against the invasion fleet, their entire success during the first three weeks amounted to one hospital ship sunk and two damaged (all on 24th January) and one landing-craft burnt out and two more damaged. The total of all enemy aircraft available for operation against Anzio barely reached 450 while the Allies had about 3,000 within comparable striking distance.

Allied ground commanders by this time took adequate defence for granted and required an increasing scale of direct cooperation. The light bombers and fighter-bombers of XII Air Support Command were constantly active both at Anzio and over the Fifth Army until the end of January, but after the first few days at Anzio had provided few targets the medium bombers swung back to rail interdiction duties which became increasingly important as the probability of enemy reinforcements grew. M.A.S.A.F. bombers also hammered away at railway targets in north Italy, achieving some success by day, although the Wellingtons could operate on four nights only when they mounted an abortive raid against the Maribor aircraft factory (23rd-24th), fairly successful attacks against marshalling yards at Arezzo (27th-28th), Foligno and Verona (both 28th-29th), and an unsuccessful raid on an oil refinery at Trieste (31st January-1st February). Desert Air Force was drawn into the main air pattern immediately Kesselring began to withdraw the *26th Panzer Division* from the east coast, and on 23rd and 24th January No. 239 Wing ranged across the Apennines to conduct armed reconnaissances to the north of the Anzio beach-head. On the 23rd Nos. 450 R.A.A.F. and 260 R.A.F. Squadrons were briefed to block the Popoli gap by causing a landslide, and this choke point was repeatedly attacked by other squadrons throughout the next few days, although the Germans, by moving at night, were only partly delayed. No. 3 made a particularly effective strike against Arsoli railway station on the 25th, and throughout the week both Australian units were active against all lines of communication south-east of Rome.

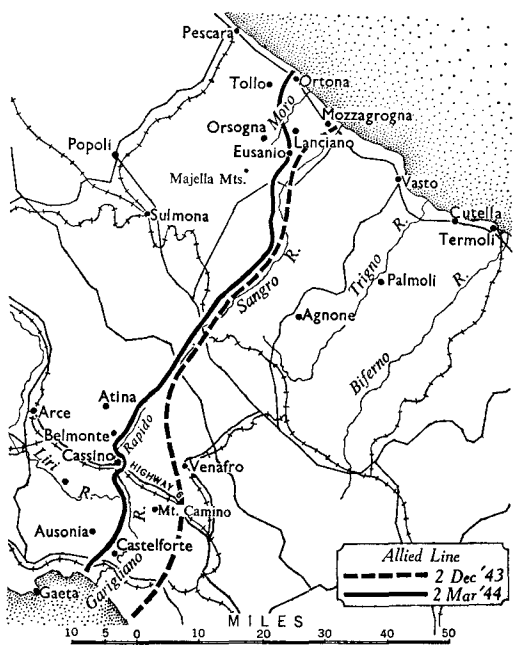
The main weakness of Allied air effort was at night when only a few light bombers were available for interdiction of supply routes. This factor coupled with weather, terrain difficulties and the ingenuity and persistence of the enemy, allowed the Germans to mass troops around Anzio at a rate which Maitland Wilson had not expected. Enemy reinforcement, however, was less than planned and according to Major-General Hausser, commanding the *Fourteenth Army,* a German counter-attack to liquidate the bridgehead was planned for 28th January "but owing to the delay in the arrival of expected reinforcements due to enemy air attacks on roads and railways in central Italy, it had to be postponed till 1st February".

Meanwhile VI Corps, with approximately 70,000 men, 500 guns and 240 tanks ashore by the 29th, decided to stage a coordinated attack to seize Colli Laziali, block the main highways and then advance on Rome. This offensive began early next day towards Campoleone and Cisterna, but was halted after three days of intense fighting during which VI Corps made limited gains. Except on the first day, weather almost entirely prevented the air forces from intervening in the battle, although No. 239 Wing had been able to attack shipping on both sides of the Adriatic. It is doubtful whether even heavy air support would have allowed VI Corps to break through as planned because it had not expected to encounter the major defence positions which the enemy had quickly established in front of Cisterna and Campoleone. The Allies had no alternative but to assume the defensive in the Anzio area, and, with a static battle in the Adriatic sector and little progress being made on the Fifth Army front, the initiative passed temporarily to the enemy. The fighting at Anzio had partly consumed the enemy's supplies built up for the intended decisive counter-attack of 1st February, and this, with a renewed Fifth Army offensive early in February, and the delays in enemy transport arrangements already caused by air attack, forced the Germans to postpone their Anzio attack until the 16th.

The original intention that Anzio should force a swift enemy withdrawal from the Gustav line had manifestly failed, but General Wilson was still "confident that continued attacks on the main Fifth Army front, combined with continued pressure in the beach-head and assisted by air attacks against enemy lines of communication would secure a favourable outcome of the battle". There was a tendency to look to the air to resolve the ground deadlocks and some fears were expressed early in February 1944 that Wilson would declare a state of emergency and tie the Fifteenth Air Force to the Italian battle at the very time when it was due to participate with Anglo-American bombers from Britain in an all-out offensive against the German aircraft industry. A formal decision was averted, and throughout February the heavy bombers were divided between strategical and tactical tasks. The Wellingtons of No. 205 Group could operate on only 11 nights during February, but, except for strategic attacks against an aircraft factory at Maribor on the 1st and an abortive raid on Steyr-Puch on the 24th, their entire effort was devoted to the land battle. The first two targets were marshalling yards at Padua (7th-

8th) and Rimini (8th-9th), but for seven successive nights from 12th February they roamed over the Campoleone-Albano-Grottaferrata area bombing roads, dumps and strongpoints.

The major enemy attack on 16th February coincided with good flying weather, and the small German Air Force again made a heroic attempt to give assistance. Each of the enemy fighter-bombers flew three or four sorties each day and fighters achieved approximately 150 sorties on each of the first two days. This scale was entirely dwarfed by that of M.A.A.F. which, on the crucial 17th February, mounted in all some 1,700 sorties over the battlefield, half by fighters and the rest by all types of bombers ranging from heavies to fighter-bombers which showered enemy front-line positions with almost 1,000 tons of bombs. Although this unprecedented level of close support did not cause many casualties, it severely limited enemy freedom of movement and disrupted supplies. Under pressure from "overwhelming" and "devastating" (according to Hausser) artillery fire and aerial bombardment the German attack wilted and failed by the evening of 18th February. For 10 days the ground forces of both sides regrouped and prepared for a new trial of strength. M.A.T.A.F. continued to pound communications in the German rear areas and to watch closely the progress of enemy deployment for what was intended as a surprise offensive from Cisterna. This opened on the 29th in weather which reduced but did not prevent air action, and once again bombing and exceptionally heavy artillery-fire blunted the drive so that the attack was finally abandoned on 1st March, by which time the Germans had finally lost the initiative which they had seized at Anzio early in February.



Meanwhile, throughout February, the Fifth Army had been making frontal attacks on the Gustav line with especially heavy attacks in the Cassino sector. The II American Corps attacked there on 10th February but was repulsed. The newly-formed New Zealand corps then took over responsibility in this area and prepared to attack on the 15th after a heavy air bombardment of the monastery at Monte Cassino which was believed to be in use as an artillery-spotting

headquarters. The monastery was duly wrecked by 576 tons of bombs on the 15th, but the 4th Indian Division was able to make only slow progress. Next day, when fighting flared up at Anzio, Desert Air Force sent fighter-bombers to attack Monte Cassino. The bad weather, which for a fortnight had permitted No. 239 Wing to operate only intermittently and then mainly against Yugoslav targets, was responsible for two squadrons, including No. 450, failing to find the target, but No. 3, led by Wing Commander Eaton, broke through cloud to drop their bombs accurately on the monastery. The Australians returned to Monte Cassino next day to support a renewed ground assault by the New Zealand corps, but were then inactive, on account of weather, until the 22nd, by which time the land battle had resulted in another stalemate, after the Allies had gained a small bridgehead over the Rapido River.

The Allied ground forces in Italy were by this time manifestly exhausted by the repeated attempts under adverse conditions to breach the main enemy lines by frontal assault. On 22nd February General Wilson represented to the British Chiefs of Staff that the impending invasion of southern France should be abandoned, and that all forces in the Mediterranean should have as their main object the containing of a maximum number of German troops in southern Europe. This was to be accomplished by feint attack over a wide area and by limited offensives designed to link up the main and beach-head fronts by "making the most of our superiority in weight of metal". Above all, Wilson considered that "Italian operations were likely to be conditioned mainly by the air factor" and that "subject always to the general program for the bombing of Europe . . . the primary task of the Air Forces in Italy must be to make it impossible for the enemy to maintain a powerful army on the Rome Line".

This long-range and indirect method of driving back the Germans to the Pisa-Rimini line was far from welcome to the Combined Chiefs of Staff. The Italian campaigns had repeatedly absorbed ground and air forces and landing-craft badly needed elsewhere, and, although considerable gains had always seemed within grasp, few had actually accrued. Moreover Anzio provided a grim warning that OVERLORD might similarly be stalemated by pertinacious enemy defence. The Combined Chiefs of Staff therefore looked to a more speedy breaking of the deadlock by urging Wilson on 8th March to employ his entire air forces in a mass attack against one vital point in the enemy defences to blast a gap through which the ground troops could pour and outflank the whole Gustav line. Wilson quickly agreed, because he and his ground commanders had already discussed favourably such a plan, and it was decided to make a supreme effort at Cassino as soon as favourable weather was assured.

As in the previous attempt against Cassino monastery, the New Zealand corps was to attempt the break-through, but all units of the Fifth Army and VI Corps were regrouped ready to exploit any initial success. The magic wand of air bombardment was waved on 15th March, when between

8.30 a.m. and noon a fairly constant stream of approximately 300 heavy and 200 medium bombers rained over 1,000 tons of demolition bombs in and around Cassino, while 550 fighters and fighter-bombers combed the area for targets of opportunity. Under this unprecedented battering the small town of Cassino was reduced to a mass of rubble which was then subjected to four hours intense artillery fire (1,200 tons of shells) while probing forces of the 2nd New Zealand Division advanced into the ruins. During the afternoon the weather deteriorated, limiting air action, and the moon-cratered terrain across which the infantry had to pass began to fill with water so that the men floundered along slowly and were entirely unsupported by tanks which could not advance at all. By nightfall, when cold driving rain prevented further progress, the New Zealanders were in possession of most of the ruined town, but had failed to reach the dominating positions astride Highway 6 which were strongly held by the enemy.

By the time a new drive could be attempted next day, the Germans, who had recovered from the impact of air and artillery fire, emerged from the many natural caves and deep cellars which had kept their casualties very low, and, by turning each heap of rubble into a strongpoint, were able to beat off repeated infantry and, later, tank attacks. The Allied attempt continued until the 23rd when it was abandoned. Too great reliance had been placed on the ability of the bombers to do the task alone, and it had not been sufficiently realised that, unless the ground troops advanced promptly and swiftly during the relatively brief period when the enemy defenders were physically and psychologically stunned, the scale of bombing in such circumstances would give benefits to the defenders rather than to the attackers. The task actually given to M.A.S.A.F. and M.A.T.A.F. of physically obliterating Cassino had been done only too well; some errors in timing and aiming may have influenced the slow advance of the infantry; but the main fault of the Cassino plan lay in imperfect appreciation of the capabilities and limitations of bombing.

The March offensive against Cassino convinced the Allies that it was impracticable to attempt frontal assaults against the Gustav line with tired troops in bad weather. On all fronts the Allies went over to the defensive and prepared for a new attack in May when greater force could be applied in better conditions, and when large-scale fighting would preoccupy the Germans in a manner suitable to the requirements of OVERLORD. Static fighting fronts would require very little air support in the absence of enemy attacks, and therefore M.A.T.A.F. was released for an ambitious campaign against enemy lines of communication which air commanders had advocated for some time. Preliminary directives of 18th and 25th February to M.A.T.A.F. had already focused air bombardment on marshalling yards in central Italy, but it was not until the overriding needs of the ground fighting abated that a regular and intense program was possible. The directive of 19th March (operation STRANGLE) which inaugurated the Anzio campaign called for a proportion of the heavy-bomber effort and the total resources of M.A.T.A.F., including XII A.S.C. and Desert Air Force, to attack all enemy road, rail and sea communica-

tions south of Pisa-Rimini in order to isolate German forces in central Italy. The object was no longer the temporary interference designed to isolate a battleground at one particular time, but a progressive attrition which would make it impossible for Kesselring to maintain his forces in the Gustav line in full fighting condition. Either a voluntary withdrawal would have to be made or only a weak defence would be possible against the Allied summer offensive.

During late March, April and early May 1944 the Fifteenth Air Force dropped some 5,000 tons of bombs against the more northerly Italian rail centres, especially Milan, Turin, Verona, Bolzano and Bologna. These raids were normally made when weather prevented attack against German targets. They caused heavy damage and, although they were not frequent enough to prohibit through rail traffic, they caused the enemy to expend much labour and repair material which was urgently needed farther south, and incidentally destroyed rolling stock and military supplies, thus aggravating the growing shortages. No. 205 Group, by this time reinforced with one Liberator and one Halifax squadron of No. 240 Wing, made eight attacks in the same area before 2nd April, dropping nearly 750 tons of bombs on rail facilities at Orbetello, Genoa, Padua, Vicenza, Milan, Cesano and other places. A different target system was chosen for April and a large number of attacks were made on shipping and port installations at Genoa, Leghorn, Piombino, Spezia and San Stefano. These were almost all harassing raids carried out by small waves of aircraft throughout the night with the object of interfering with the enemy's attempts to load or unload supplies for the front line. These raids continued during the early part of May together with several small attacks against marshalling yards and a few special attacks against key railway bridges.

Italian targets were not the only ones given to No. 205 Group at this time, for, although the Wellingtons which provided the bulk of the force were no longer suitable for operations over Germany, there were many semi-strategic objectives in the Balkans and eastern Europe which they could reach from Foggia. Thus on 15th-16th March Sofia was bombed with the twofold aim of destroying railway communications and of reminding the Bulgarian people that their capital was vulnerable to air attack. This raid met only weak opposition and 125 tons of bombs fell on Sofia, but unfortunately the weather deteriorated during the return flight, and of the 67 aircraft sent out 12 crashed or had to be abandoned when their petrol was exhausted. On this occasion there were 21 Australian pilots (31 per cent) but only 42 other aircrew members (14 per cent) in the total force, with the highest aggregation in No. 150 Squadron which had 8 Australian captains and 15 other aircrew in its 13 crews dispatched. These proportions are roughly those obtaining for all major raids of No. 205 Group during the first half of 1944, although on minor raids there were fluctuations from the norm.

A smaller raid was made against Sofia on the following night and two more large ones on 24th-25th and 29th-30th. All these were suc-

cessful but an attack against Plovdiv on 18th-19th March largely miscarried, the bombs falling haphazardly over a wide area. The Wellingtons went even farther afield on 3rd-4th April to bomb the Manfried Weiss factory at Budapest, but their versatility was shown to great advantage, when, after several days of bad weather, they next operated on 8th April. Firstly 11 Wellingtons went out in the afternoon to attack German troops in the small Yugoslav town of Niksic, where they were surrounded by Marshal Tito's partisans, and that night 19 Wellingtons and 3 Liberators laid mines in the River Danube between Bazias and Belgrade. The employment of Wellingtons for daylight tactical operations was occasionally justified at this time where factors of range, total bomb-load or the ability to carry individual bombs of large size dictated the selection of heavy bombers in preference to the medium, light or fighter-bombers which were specifically trained for tactical cooperation. The Danube mining operations were to become increasingly important, both, as at first, as part of a general attack on enemy communications, and later as part of the campaign against enemy oil resources. On this initial venture 40 1,000-lb mines were laid and a further 137 had been added by 15th April. Although other targets then took precedence, mining was resumed during May when, over four nights, 364 mines were laid by Wellingtons and Liberators. This campaign took the enemy by surprise so that during early raids weather was a greater limiting factor than enemy opposition, and on some occasions crews were able to attack barges and larger vessels with machine-gun fire after laying their mines.

Other targets given to No. 205 Group during the Anzio period were the Varese Macchi aircraft factory against which an entirely abortive raid was mounted on 11th April, and the Turnu Severin marshalling yards in Rumania which were hit on 15th-16th by 91 Wellingtons, the largest night force sent out against one target. Budapest was again bombed on 16th-17th and Plovdiv next night, but on both occasions it was difficult to find the target because of thick haze. No. 614 Squadron which had become the pathfinder unit of No. 205 Group was still training in its new role and was not available for these raids, but, after a fortnight of participation in the general small harassing attacks on Italian ports and communications, it was ready to lead the night bombers against important targets in the Balkans. The Russian armies were already threatening Rumania and so, on 3rd-4th May, a heavy attack was made on Bucharest marshalling yards to disorganise enemy supplies. The industrial area of Bucharest was attacked on 6th-7th May and again next night by forces of more than 60 aircraft, but the Wellingtons could not carry a large bomb-load at this range, and large-scale destruction did not result. The political significance of the Bucharest raids and also of yet another against Budapest on 4th-5th May was considerable and large numbers of propaganda pamphlets were dropped over all the Balkan countries by Wellingtons operating singly; these emphasised that Hungary, Rumania and Bulgaria were facing offensives both from the east and the west.

Although operations by heavy bombers over northern Italy had an important diversionary influence during this period, the main task fell to American medium and light bombers. These had to cut and keep inoperative the main and auxiliary railways in central Italy, a more formidable network than had been encountered previously. Within a week of the formal commencement of STRANGLE on 19th March all main lines to the German front line had been cut in at least one place, and before 11th May nearly 200 attacks had been made by forces of medium bombers. Of these more than half were against marshalling yards or bridges on the Rome-Florence main line, which the enemy made herculean but unavailing attempts to keep open. From early in April XII Air Support Command and Desert Air Force began to add their full weight to the offensive by attacking bridges, tunnels and exposed points on the tracks, and by destroying individual locomotives and waggons. As the Germans turned increasingly to road traffic for supply purposes, either to link up between damaged stretches of track, or for final delivery from ever more northerly unloading points, the fighter-bombers in particular reaped a rich daily harvest which constantly increased the confusion and delays in the enemy supply position.

In some ways this fighter-bomber activity, although it did not cause major damage at any one point, was more unwelcome to the enemy than the medium-bomber raids. A through line could often be improvised quickly after a major raid if work was undisturbed, but the ubiquitous free-lance fighter-bombers not only damaged electricity and communication cables, so that often repair gangs did not know where they were needed, but from dusk to dawn they threatened any attempt to make repairs at all. This retarding of repairs became increasingly effective as damage accumulated on all lines so that enemy difficulties mounted in geometric rather than arithmetical progression. Although additional railway engineer companies were hastily brought from France and many anti-aircraft guns were deployed along the railways, the Germans were forced to attempt most of their repairs by night, and rail traffic south of Pisa-Florence-Rimini was at a virtual standstill by May 1944 except during the hours of darkness. Unfortunately, because there were only a few night-flying Bostons and Baltimores in Italy to add complementary pressure by night, interdiction could never be complete, and the Germans were able to get individual trains as far south as Chiusi or Terni and to move supplies slowly forward by road. The scale of supplies reaching the German front line was sufficient only to maintain static battle conditions; a supply vacuum was being created in the immediate rear areas which would become fully apparent as soon as large-scale fighting began once more.

Within the framework of this vast cooperative air campaign during which nearly 50,000 sorties were made in seven weeks against communication targets, the contribution of the two Australian fighter-bomber squadrons was small, but not without importance in its own limited field. However, no abrupt change of role was discernible to the Australian pilots who, because of paucity of purely army targets on the static Adriatic

front, had become accustomed during the last two months to opportunist attacks against enemy communications. When Squadron Leader Nash replaced Eaton in command of No. 3 Squadron on 22nd February the second battle of Cassino had ended in stalemate and until the end of the month anti-shipping targets on both sides of the Adriatic were given to the Kittyhawks. Many claims were made, the most outstanding coming on 24th February when Flying Officer Richards[2] was credited with a direct hit on a 6,000-ton ship in Sibenik Harbour during a raid led by Nash. As early as 27th February Italian communication targets were given more attention and a railway tunnel near Terni and a road junction at Arce were attacked before No. 239 Wing on 29th February turned its effort against the second German counter-attack at Anzio. Throughout the first fortnight of March the Kittyhawks maintained armed patrols in the area south of Rome on all days fit for flying. Profitable targets were found on most days although, as always with this kind of activity, actual successes appear to have been inflated in contemporary records by duplicated claims against the same targets.

On 2nd March No. 450 Squadron bombed a train which was taking daylight sanctuary in a tunnel. Next day Flight Lieutenant Doyle, leading a patrol from No. 3, found a large congregation of vehicles on the roads and in the fields near Gallicano, and the Australians claimed that they set 29 of them on fire and damaged many more. Other days brought smaller dividends on the ground, but on the 11th pilots of No. 3 met enemy aircraft for the first time since the Sicilian campaign. Nash, Flight Lieutenant Watts and three other pilots were escorting an Italian air-sea rescue aircraft searching for a Wellington missing over the Adriatic when four Me-109's approached from the west. They made no attempt to engage closely and made off after Watts had possibly damaged one. Soon afterwards an SM-79 without any identification marks was seen and shot down. Two days later when Watts was leading an armed reconnaissance patrol up the coast to Rimini a lone Ju-52 was encountered and this too was set alight by the Kittyhawks and it crashed into the sea. Poor militarily as these victories were, they served to remind all pilots of the very favourable conditions under which they themselves could now operate. Flying Officer Hogg[3] was attacked south of Rome on the 17th by two Me-109's but they sheered away after he had the better of a confused scrimmage.

For a few days the third battle of Cassino gave the fighter-bombers a taste of close-support work but on 15th March, when enemy gun positions north-west of Cassino were the main targets, No. 450 and two other squadrons made attacks in Yugoslavia. The next day the Kittyhawks were briefed to bomb enemy gun flashes in the Cassino-Belmonte area but they then turned to road and rail facilities in the enemy rear,

[2] F-Lt K. A. Richards, DFC, 400104; 3 Sqn. Clerk; of Essendon, Vic; b. Castlemaine, Vic, 14 Feb 1920.

[3] F-O W. D. Hogg, 420401; 3 Sqn. Commercial traveller; of Bellevue Hill, NSW; b. Randwick, NSW, 23 Aug 1922.

giving special attention to railway bridges near Terni and Spoleto. This program was interrupted on the 19th by the necessity to give support to a commando attack on the island of Solta off Yugoslavia, during which No. 3 made the initial and one other of six raids against Grohote on that island. Italian targets predominated for the rest of the month and patrols brought a small but steady trickle of claims against railway installations and road traffic. The highlight for the Australians was an attack on 27th March by 12 Kittyhawks of No. 3 against Rimini and Forli airfields. The aircraft were fitted with long-range tanks and Watts led them up the Adriatic to make landfall at Rimini and press home a swift strafing attack against a motley collection of aircraft dispersed around the field. The Kittyhawks went straight on to Forli where a mixed bag of five German and four Italian aircraft were set on fire. During the return flight a small coastal steamer and a schooner were also strafed until all the aircraft ammunition was expended. Three days later No. 450, after scoring one direct hit on a bridge near Ancona, flew inland to Iesi airfield, destroyed a Macchi C.202 which was taxiing along the runway, damaged two other aircraft, silenced a machine-gun post and damaged a diesel rail-car.

During April 1944 No. 3 Squadron flew 354 and No. 450 flew 430 sorties, practically all against communication targets in Italy, with only minor diversions such as escorting Italian aircraft used to drop supplies to partisan forces in Yugoslavia. The repetitive attacks against bridges and railway lines caused many apparent cuts but could seldom be attributed to any single pilot, and each break was of short duration unless backed up by further attack. The Kittyhawks had to face increased and determined ground fire but losses were fairly light, although in April Flight Sergeant Eaves[4] of No. 450 was twice forced to bale out and many other pilots returned from attacks against bridges with their aircraft holed. Both units received new commanding officers during the month, Squadron Leader Sands handing over No. 450 to Squadron Leader Hudson and Squadron Leader Bayly[5] returning to No. 3 for a second tour of operations to relieve Nash. No. 450 also released seven of its veteran pilots who had completed their tour, including Flight Lieutenants Goldberg,[6] Davidson[7] and Hannaford, each of whom had shown considerable ability as formation leaders. There was no shortage of experienced Australian pilots in M.A.A.F. and, with many returning for second tours, operations could continue with a minimum of base training. Individual Australian pilots were also prominent with other units of No. 239 Wing, especially in No. 112 Squadron which had two successive Australian commanding officers—Squadron Leader Watts (formerly of No. 3) and

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[4] F-O H. E. Eaves, 401927; 450 Sqn. Linotype operator; of Middle Park, Vic; b. Heidelberg, Vic, 13 Oct 1919.

[5] Sqn Ldr R. H. Bayly, DFC, 407416. 3 and 451 Sqns; comd 3 Sqn 1944. Theatre manager; of Werrimull, Vic; b. Adelaide, 28 May 1918.

[6] F-Lt R. G. Goldberg, DFC, 407422. 208 Sqn RAF, 451 and 450 Sqns. Clerk; of Grassmere, SA; b. Adelaide, 2 Feb 1919.

[7] Sqn Ldr D. M. Davidson, DFC, 402321. 33 Sqn RAF, 450 Sqn, 65 Sqn RAF. Warehouseman; of Normanhurst, NSW; b. Sydney, 13 Dec 1919. Killed in aircraft accident 6 Jan 1946.

Squadron Leader Ahern[8]—but their experiences were almost identical with those of pilots in the *Article XV* squadrons.

The ground staff of No. 450 had by this time been serving for three years overseas without relief. No. 3 had received a large reinforcement draft from Australia in April 1942 but almost every man had now served at least two years constantly in the front line. The standard of maintenance remained extremely high despite the continual pressure of operations and the ground staff were able to offset any weariness induced by their long service by skill, hard won experience and pride in their units. One of the rare occasions for ground staff to distinguish themselves except by exemplary efficiency in routine came on 29th April when, in consequence of an unfortunate error, a P-47 aircraft strafed Cutella airfield. Leading Aircraftmen Moore[9] and Harris[1] were servicing one of the three Kittyhawks in the same dispersal bay. One of the aircraft which was already bombed up was set alight, and, realising but disregarding the danger of the bomb exploding and thus spreading the fire, Moore and Harris unshackled it and rolled it clear. They then taxied the remaining two Kittyhawks to a safe distance away from the fire.

Air action could not defeat the Germans or force them to retire; it could merely create conditions under which the enemy could not withstand a heavy and determined offensive. General Maitland Wilson had therefore regrouped his entire forces for a final march against Rome as soon as favourable campaigning weather came in May. The ground plan entailed leaving V British Corps as caretaker on the Adriatic flank, while X British, II Polish and XIII British Corps of the Eighth Army moved westward into the Cassino sector, linking into a solid front with the French Expeditionary Corps and the Fifth Army. The Eighth Army was to break through into the Liri Valley while the Fifth Army broke through the Ausonia defile, and once the main enemy line began to crumble, VI Corps was to take the offensive at Anzio and drive towards Valmontone. Regrouping and specific training for DIADEM, the code name allotted for this offensive, required practically two months so that the tentative date was set as 10th May.

Air plans required little alteration and on 28th April it was decided that air tasks should consist of operations to prevent interference by the German Air Force; normal close-support operations along the front; and "coordinated effort of all available air forces, to maintain the present interruption of the movement of supplies to the German armies in the Rome area and by intensified air activity, to so reduce the supplies available to enemy forward troops that he is unable to offer sustained resistance to the assault". Three phases of activity were agreed upon. Before the battle commenced an all-out effort was required against communications and supply dumps, with heavy bombers active north of Pisa-Rimini,

[8] Sqn Ldr L. N. Ahern, DSO, DFC, 402781. 451 Sqn, 112 Sqn RAF; comd 112 Sqn RAF 1944; Adv HQ DAF. Clerk; of Taree, NSW; b. Sydney, 15 Aug 1912.

[9] Cpl S. R. Moore, 11750; 3 Sqn. Motor mechanic; of Swan Hill, Vic; b. Echuca, Vic, 7 Aug 1921.

[1] Cpl K. M. Harris, 37137; 3 Sqn. Fitter and turner; of Dulwich Hill, NSW; b. Dulwich Hill, 21 Apr 1922.

Tactical Air Force south of this line, and Coastal Air Force on the western flank. In the assault phase Tactical Air Force was to operate over the battle while the Strategic Air Force bombed enemy corps and army headquarters. In the final stage of break-through, the heavy bombers were to revert to strategic tasks, but all other aircraft were to maintain pressure on the enemy as he retreated.

The intensive preparatory phase duly began on 1st May and for its part No. 239 Wing, despite three days when little flying was practicable, sent 70 different formations to bomb railway bridges and tracks near Cesano, Spoleto, Esino, Fano and Foglia before the ground offensive began. The wing also flew armed reconnaissances and anti-shipping strikes and bombed some enemy dumps and minor headquarters. During these 11 days Nos. 3 and 450 Squadrons flew a combined total of 307 sorties. Among their successes were direct hits by No. 450 on the railway bridge at Fano on 5th and 10th May, and the breaching of a dam across the Pescara River on 5th May by No. 3 in conjunction with No. 5 S.A.A.F. and No. 260 R.A.F. Two days later when No. 3 was the only squadron to operate in prevailing bad weather Pilot Officer Macdonald[2] scored a direct hit on the eastern span of a bridge over the River Esino. Each of these attacks was valuable in itself but doubly so as part of the pattern of paralysis gripping all enemy movements.

Far away at Poretta in Corsica No. 451 Squadron was now taking a slightly different part in the same campaign. The first operation of this unit since its transfer from Egypt took place on 23rd April when escort was given to 24 Mitchell bombers attacking a railway bridge at Orvieto. As if to emphasise that No. 451 had at last reached the fighting line, 10 FW-190's and 4 Me-109's attempted to intercept the formation during its return flight but were driven away before they could reach the bombers. The same afternoon Australian Spitfires swept between Leghorn-Florence-Poggibonsi and Siena, strafing trucks at the Siena railway station before returning to base. These two tasks of escort and armed reconnaissance in the area north and west of that covered by Nos. 3 and 450 continued unabated through the preparatory phase.

DIADEM began with a very heavy Allied artillery barrage at 11 p.m. on 11th May; during the night all forces except those at Anzio and in the Adriatic sector began to move forward, but soon met stubborn enemy resistance along the entire front. The second phase of air collaboration began smoothly with heavy bombers attacking Kesselring's headquarters and that of the *Tenth Army,* and then seeking interdiction targets in north Italy, and with medium bombers hitting supplies and troop concentrations immediately behind the line. Desert Air Force was to support the Eighth Army on the right flank of the battle and the first task given to fighter-bombers on 12th May was to silence strong gun positions near Atina, nine miles north of Cassino. Thirteen bombing attacks, in six of which the Australian squadrons joined, were made on the first day and the cab

[2] F-O A. Macdonald, 411071. 3 Sqn; personal pilot to GOC Eighth Army (Lt-Gen R. L. McCreery) 1944-45. Clerk; of Waitara, NSW; b. Auburn, NSW, 28 Sep 1920.

rank system was reintroduced on the 13th so that until the end of the battle, fighter-bombers were usually at hand during daylight hours to make an immediate attack against any particularly troublesome enemy gun. The army-air support controls repeatedly relayed congratulatory messages on the accuracy of No. 239 Wing's close-support bombing throughout the period up to the fall of Cassino on the 18th. The two Australian squadrons had contributed 251 sorties to the cab rank, their only diversion being on the 15th when Flight Lieutenant Strom[3] led 12 Kittyhawks of No. 450 to bomb and sink a 1,000-ton vessel in Ancona Harbour.

There had been no enemy air attack against the cab ranks operating over the battle. The German Air Force was so preoccupied with defence of the Reich and preparations to repulse OVERLORD that it could spare no reinforcements for Italy, and even the long-range bombers there were consciously conserved in case of even greater emergencies elsewhere. The best that enemy fighters could accomplish was a somewhat diffident opposition to the continuous daylight bomber activity over north and north-central Italy but this demonstrably failed to blunt the Allied attack. The outstanding enemy bomber operation was a twin attack against the overcrowded Corsican airfields of Poretta and Alesan on 12th-13th May, when Ju-88's dropped large numbers of anti-personnel bombs. No. 451 lost six ground staff and two pilots killed in this raid while only two of its Spitfires escaped damage. Other fighter squadrons and the Mitchells at Alesan were hit equally hard, but, by late afternoon of the 13th, limited operations were possible and thereafter No. 451 was able to provide its full quota of aircraft for sweeps and escort patrols over Tuscany.

During the week before the Gustav line began to crumble on 18th May, the remaining significant group of Australians in No. 205 Group turned from the Balkans to attack ports in north Italy (on the 11th-12th, 12th-13th and 16th-17th), marshalling yards at Arezzo, Orvieto and Milan (13th-14th) and railway bridges at Fornovo di Taro (13th-14th), Latisana, Casarsa and Avisio (14th-15th). Then on the 17th-18th a small force bombed the roads around Frosinone with the object of creating a traffic jam which would provide good daylight targets for tactical bombers. Thereafter, for 10 nights, road targets were attacked each night except on the 19th and 20th when bad weather intervened and on 21st-22nd when Portoferraio (Elba) and Piombino were revisited. Up to and including the 24th-25th the Wellingtons struck between Frosinone, Valmontone and Ferentino in preparation for and active support of the break-out of VI Corps from Anzio on 23rd May. They then transferred their effort northwards and for three successive nights attacked roads near Viterbo which were choked with enemy vehicles. Roads in the Subiaco area were attacked on the 29th-30th May, but in the meantime No. 205 Group had paid some brief attention to its more distant objectives, bombing San Stefano (28th-29th), mining the Danube and attacking Fuersbrunn airfield (29th-30th), while on the last day of the month the Iron

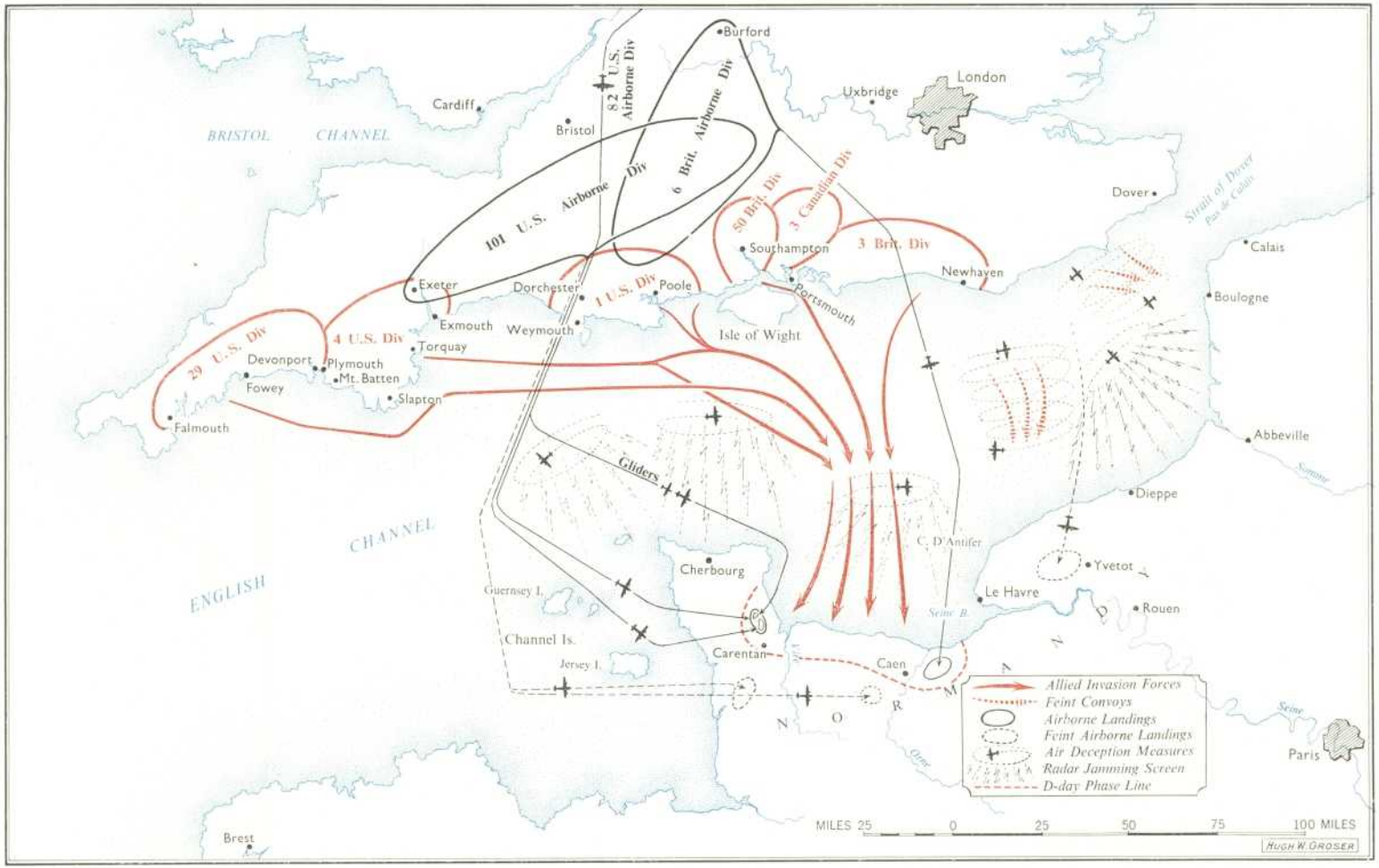
[3] F-Lt E. H. Strom, DFC, 412278; 450 Sqn. Motor engineer; of Manildra, NSW; b. Annandale, NSW, 3 Sep 1917.

Gates canal on the Danube was chosen as the primary target. The Wellington night attacks against battlefield communications defy precise analyses, although both Allied reconnaissance and enemy admissions indicated that they caused considerable damage and frequent delays at the most profitable times.

Once the Gustav line was broken the full benefits of STRANGLE became clear. The Germans were placed in the position which it had originally been hoped to achieve late in January—menaced both by the frontal break-through and by flank attack from Anzio. Even retreat was difficult over shattered roads with few or no dumps well supplied, and with both road and rail traffic in a chaotic state. The Australian Kittyhawks spent the 19th and 20th May pounding the ruins of Pontecorvo, where enemy rearguards were fighting desperately for time, and then on the 21st turned against road bridges in order to block the line of retreat. This hammering of choke points went on for three days during which the whole of No. 239 Wing transferred from Cutella to San Angelo on the banks of the Volturno. The Australians were thus well based for an effective share in the ceaseless daylight air offensive, under cover of which VI Corps was able to link up with the main Fifth Army, and all Allied ground forces then began a concerted drive on Rome.

In eight days Nos. 3 and 450 flew 401 sorties on mainly free-lance patrols over roads leading north, with only occasional requests from the army to subdue enemy strongpoints. The most obviously successful day came on 30th May when No. 3 Squadron found about 200 enemy vehicles jammed nose-to-tail in one, two and three columns south of Subiaco, which had been bombed during the night by Wellingtons. The Kittyhawks bombed the head of this mass, effectively sealing the road; then all squadrons of No. 239 Wing, briefed in rotation, bombed and strafed the hapless convoy with the result that 86 vehicles were claimed destroyed and 37 damaged in this one incident.

General Wilson expected the Germans to make a stand south of Rome in positions hinging on the Colli Laziali and Majella features but in the face of continuous ground and air pressure, denuded of supplies, restricted in movement and lacking the benefits of prepared defences and bad weather which had aided them during the winter, the enemy was driven from Valmontone on 2nd June and began a general retreat. No real attempt was made to defend Rome, which American forces entered on 4th June, and the long-sought prize which had dominated the whole conduct of the Italian campaign fell to the Allies at a peculiarly significant time. It was the eve of the OVERLORD operation, and, although Anzio had swallowed up the resources intended for a concurrent invasion of southern France, the precarious position of the enemy in Italy created the next best possible diversion for the assault on north-west Europe.



The Allied assault on Normandy

CHAPTER 5

THE ASSAULT

BEFORE the first invasion craft headed for France, Allied air power had already done much to create a favourable situation for the ground and naval forces. Offensive action from the Aegean to Norway had tied down enemy garrisons and created ever-growing difficulties of supply; the German industrial economy had been weakened by continual bombing, so that despite brilliant improvisation under the direction of Albert Speer, it was barely possible for the enemy to provide each of his major and minor fronts with full military requirements. Conversely, air had been a brilliant partner in the victory over the U-boat, as a result of which Allied supply difficulties had been largely overcome and a formidable reserve of trained men and materials built up in Britain. Then—more precisely related to OVERLORD—the power of the German bombing force had been broken, and fighter forces had been driven from the vicinity of the intended landings, partly by attacks against airfields in France, and partly because the enemy had to withdraw units for the defence of Germany against bombing attacks. The offensive against marshalling yards, bridges and general lines of communication in north-eastern France had seriously interfered with enemy mobility and supply arrangements, thus impeding in advance any immediate full-scale counter-attack.

The hard crust of the "Atlantic Wall" of fixed defences had been dented in a campaign which consciously misled the Germans as to the point of attack and forced them to spread the defences rather thinly both in quantity and quality. This deception was possible only because Allied defences denied the enemy any opportunity to make regular or detailed reconnaissance of southern English ports, which would have given him a clearer idea of the progress of preparations and the direction of the main weight of attack. Again, sharply in contrast, Allied reconnaissance aircraft provided complete and up to the hour reports of German defences and deployment, so that assaulting troops could be trained beforehand to expect and recognise almost every feature which would confront them.

Great as were the cumulative benefits from Allied supremacy, there was still much to be done, both in ensuring the success of initial lodgement in Europe, and later by holding the ring around the battle, and by positive intervention, to compensate for the natural advantages which the enemy possessed in potential build-up of prepared defences and internal lines of communication. The air battle went on without pause, merely becoming intensified and localised once the need for deception was over; the phases of preparation, participation and exploitation merged into each other without the fine dramatic contrasts of the ground or naval battles. Indeed, although many Australians flying during the first historic night and day of OVERLORD felt a sense of anticlimax in their own role, the many-sided use of air power played a highly important part in the

initial success of the venture. Little was left to chance, and the Allies, fortunate in their possession of extremely large air resources and free to employ them almost at will, filled the sky with aircraft on a scale which in the light of actual events may suggest over-insurance.

Logically the first aim was to continue for as long as possible the blinding of the enemy so far achieved by denial of reconnaissance and by attacks against his early-warning radar screen. It was now intended that the movement of the assault convoys and airborne forces should be covered by special radar counter-measures to jam or limit the effectiveness of those installations which it had not been possible or wise to destroy. Further, a combined air-sea feint was to be made against the Pas de Calais far from the actual scene of invasion. In final form there were five separate components of the aerial "cover" plan requiring 116 British four-engined bombers and a smaller number of American aircraft.[1] One force of 16 Lancasters of No. 617 Squadron trained throughout May for its part in the operation, which was to simulate a large convoy approaching Cap d'Antifer at 7 knots on a 14-mile front. The "convoy" was actually 18 small ships flying barrage-balloons which would give a big-ship echo on German radar screens, while the aircraft dropped Window in carefully calculated amounts and sizes to maintain the illusion of a vast congregation of ships.

There had always been a large percentage of Australians with this special-duties squadron, and on this occasion Squadron Leader D. J. Shannon, Flying Officers Carey,[2] Ross,[3] Kell,[4] Lee,[5] and Stanford[6] each piloted one of the aircraft. The chief problem was one of navigation and meticulous flying, because the Lancasters had to parade on elongated orbits, parallel to the enemy coast, each circuit advancing a small distance so that during the night 24 nautical miles of apparent forward motion would be made good at a uniform seven knots. The whole effect was to be heightened by an intentionally low amount of jamming in this area in order to attract enemy notice. Any major mistake would immediately destroy the illusion, but the task was well done, and radar watchers in England reported that the operation exactly simulated a large convoy.

A similar operation with 16 small ships advancing on Boulogne was conducted by 6 Fortresses of No. 218 Squadron flying in 2 lines of 3 aircraft. Each crew was reinforced to 2 pilots, 3 navigators and 4 "Window launchers" to palliate the fatigue of flying 23 circuits with an average error of only 200 yards. The operation was a great success, as there is

[1] This number of RAF aircraft is taken from the ORB's of the squadrons involved and is higher than that given in the Bomber Command report and Leigh-Mallory's despatch. The difference is due to last minute additions to the plan.

[2] F-O D. W. Carey, DFC, 416650. 106 and 617 Sqns RAF. Clerk; of Mount Gambier, SA; b. Mount Gambier, 25 Sep 1918.

[3] F-O I. S. Ross, 18839. 57 and 617 Sqns RAF. Fitter and turner; of Alphington, Vic; b. Camperdown, Vic, 28 Mar 1920. Killed in action 12 Jan 1945.

[4] F-Lt A. E. Kell, DFC, 412969. 467 and 463 Sqns, 617 Sqn RAF. Clerk; of Marrickville, NSW; b. Campsie, NSW, 6 May 1918.

[5] F-Lt W. R. Lee, DFC, 405693. 106 and 617 Sqns RAF. Carpenter; of Dirranbandi, Qld; b. Townsville, Qld, 4 Oct 1917.

[6] F-Lt R. M. Stanford, DFC, 416624. 467 Sqn, 617 Sqn RAF. Bank clerk; of Fulham Gardens, SA; b. Fulham Gardens, 25 Sep 1917.

no doubt that the enemy did mistake this simulation for a genuine convoy and brought his coastal guns and searchlights into action and alerted E-boat patrols. This success was partly due to the interaction of the third component of deception, a force of 24 Lancasters (No. 101 Squadron) and 5 Fortresses (No. 24 Squadron), which provided a V.H.F. jamming screen for four hours and a half over the Somme area. Only one Australian pilot, Pilot Officer Holland,[7] of No. 101 Squadron, took part in this operation, which led the harassed Germans to send up 24 night fighters to seek "the spearhead of a major bombing force in the Paris area".

The fourth deception consisted of 38 Stirlings and 4 Halifaxes which scattered Window to give the appearance of a much larger force and then dropped, at selected points, dummy parachutists equipped with ingenious contrivances which simulated both machine-gun and rifle fire. Again the result was to confuse the enemy's reaction to the real airborne landings farther west. Five Australian pilots were engaged in this task and all returned safely although two Stirlings were lost. The final part of the plan was not one of deception but consisted merely of delaying enemy awareness by jamming his early-warning radar equipment in the Seine Bay area. Australians piloted 4 of the 19 Stirlings of No. 199 Squadron sent on this task, which entailed monotonous flying for five hours and a quarter around each of eight set positions, the aircraft operating in pairs with three airborne as reserves ready to fill any unexpected chink in the curtain of radar blackout which they were providing ahead of the assault forces.

The counter-measure plan was brilliantly successful. It owed something to prevailing unsettled weather which led the enemy to believe no major assault would take place because of adverse visibility and tidal conditions. But, however lax the enemy coast-watch may have been, if the radar system had remained at anything like its normal efficiency surprise could not have been achieved. As it was, the captured telephone log of the *Seventh Army* gives constant evidence that the Germans had not fully realised the scope and definitive location of the assault, even at the end of the first day's fighting.

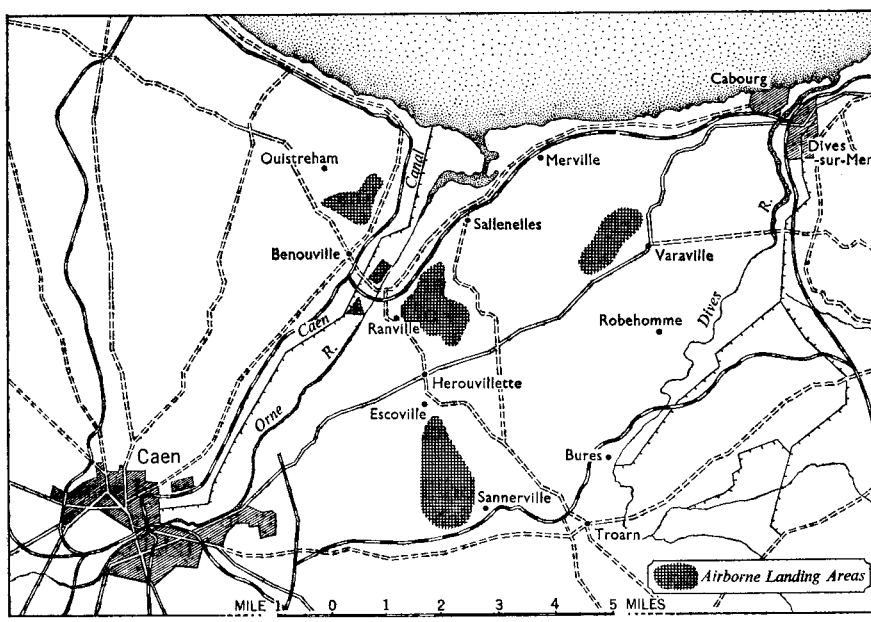
Not precisely linked to the above operations but with remote diversionary effect were three forces of Mosquito aircraft of Bomber Command which flew well to the eastern flank of the whole action. Twenty-seven aircraft made intruder raids over western Germany; 20 more covered enemy airfields in the Low Countries and 31 bombed Osnabruck. Flight Lieutenant Boylson[8] of No. 139 Squadron was the only Australian pilot in this series of aggressive moves whose purpose was to delay any untimely transfer of enemy aircraft westward.

The second precise task of the Allied air forces was to deliver the airborne troops who were to seize key points in advance of the seaborne

[7] F-Lt E. J. Holland, 416500; 101 Sqn RAF. Manager; of Mount Gambier, SA; b. Adelaide, 18 Nov 1914.

[8] F-Lt W. W. Boylson, DFC, 404623. 7, 141 and 139 Sqns RAF. Bank clerk; of Ballina, NSW; b. Wagga Wagga, NSW, 6 Oct 1918. Killed in action 25 Jun 1944.

invaders. The original COSSAC plan had envisaged that the whole of the available airborne forces would be dropped near Caen to hold the left flank, but with the subsequent extension of the assault-front, it was decided to drop only the 6th British Airborne Division near Caen and the 82nd and 101st American Divisions on the Cherbourg peninsula. This brought a natural division of responsibility for the airlift, IX Troop Carrier Command fulfilling American needs and Nos. 38 and 46 Groups those of the 6th Airborne Division.



The British operation required very careful planning, because with only 362 Albemarle, Stirling, Halifax and Dakota aircraft available (plus 61 reserves), the 6th Airborne Division had to be put into battle in stages, and much would depend on the faultless execution of various tasks. First of all "pathfinder" groups had to be dropped five hours before dawn on 6th June to clear landing zones and set up navigational beacons which would obviate the gross dispersion of effort which had marred previous airborne operations. Then the 5th Parachute Brigade Group was to seize crossings over the River Orne and the Caen canal at Benouville, capture a battery and secure control of the area, Benouville-Ranville-Le Bas de Ranville. The 3rd Parachute Brigade Group would operate on the line Troarn-Varaville, deny the enemy the use of roads from the south and east and capture the Merville battery by half an hour before dawn with the aid of a special *coup de main* glider party. The headquarters of the 6th Airborne Division and specialist units were also to land by glider as soon as the parachutists had cleared the ground, but the 6th Air

Landing Brigade and the Airborne Armoured Reconnaissance Unit could not be delivered before the seaborne assault began, and was to arrive by glider at 9 p.m. on 6th June. Thereafter Nos. 38 and 46 Groups were to make re-supply trips as necessary to maintain the airborne troops.

The number of Australian aircrew flying transports had risen considerably since the last large-scale airborne operation in support of HUSKY (the invasion of Sicily). In June 1944 the 10 squadrons of No. 38 Group held no completely R.A.A.F. crews, but there were 41 Australian pilots, roughly 14 per cent of the total establishment, together with a slightly smaller percentage of other crew categories. More than half the Australians served with the Stirling squadrons, No. 196 Squadron having no fewer than 13 R.A.A.F. pilots. In No. 46 Group Australians were far less active, there being only 8 captains of aircraft spread among 5 squadrons of Dakotas. Practically all these men took some part in the series of integrated air drops on 5th-6th June 1944 and the measure of the total success, which was very great, is also a rough measure of the individual achievement. General Eisenhower was later to write:

> In the British sector the very accurate work of the Pathfinder force enabled the R.A.F. groups to overcome the difficulties arising from the use of different types of aircraft, carrying various loads at various speeds, and the 6th Airborne Division troops were dropped precisely in the appointed areas east of the Orne River. Thanks to this good start, all the main military tasks were carried out and at a lower cost than would have been paid in using any other arm of the service. . . . During the day reinforcements were safely landed by gliders . . . the operation went off like an exercise, no opposition was encountered and by nightfall the division had been fully resupplied and was in possession of all its heavy equipment. This formation continued to hold the flank firmly until our lodgement area had been consolidated and the breakout eastward across France relieved it of its responsibility.[9]

Losses in both the British and American initial airborne landings were extremely low. Although Air Chief Marshal Leigh-Mallory in opposing the American venture on the Cherbourg peninsula had warned that losses might amount to 75 per cent, in fact they were less than 3 per cent although a further 27 per cent sustained some damage from ground fire. The startling difference between the estimated and actual losses was largely due to the effect of air attack and jamming on enemy radar installations, the absence of enemy night fighters,[1] and adverse weather which gave cover for, but demanded a higher standard of performance from, the transport crews. Allied air superiority had successfully cleared the way for the employment of air power at will. On the British side the first real mischance did not come until the re-supply drops began during the night of 6th-7th June, when the transport aircraft were engaged by Allied anti-aircraft fire afloat and ashore. Nine of 50 aircraft sent out failed to return including a Dakota of No. 512 Squadron piloted by Flying Officer Brennan.[2]

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[9] *Report by the Supreme Commander to the Combined Chiefs of Staff on the Operations in Europe of the Allied Expeditionary Force, 6 June 1944 to 8 May 1945*, pp. 22-23.

[1] Those airborne were assiduously chasing the "ghost bomber stream" near Paris.

[2] F-O W. S. Brennan, 411427. 24 and 512 Sqns RAF. Schoolteacher; of Merewether, NSW; b. Drummoyne, NSW, 18 Jan 1912. Killed in action 7 Jun 1944.

The part to be played in the assault by Bomber Command, and therefore the one which would concern most Australian airmen had already been outlined in the inter-service joint fire plan for OVERLORD. During the night of 5th-6th June, Bomber Command was to attack 10 coastal batteries in the assault area; maximum forces of American bombers were to follow up this bombardment at first light by drenching the beach-heads as the landing-craft approached the shore; gunfire from capital ships and the many specially equipped assault-craft, plus the medium and fighter-bombers attacking smaller points in the enemy defence system, were all to be concentrated on the task of pinning down the enemy during the vital period of lodgement. Accordingly on 2nd June Bomber Command apportioned the task between its heavy-bomber groups so that each battery would be subjected to attack by approximately 100 aircraft employing the Oboe marking technique. The timing of each attack required special attention because two had to be attacked before midnight to avoid confusion with the American airborne landings, that on Merville had to fit in with the 6th Airborne Division's attempt to storm it; four were detailed for attack during the last hour before twilight. The forces dispatched against each battery are shown in the accompanying table.

BOMBER COMMAND OPERATIONS 5th-6th JUNE 1944

Target Battery	Force		Bomb tonnage	R.A.A.F.	R.A.A.F. Dis-patched	R.A.A.F. Attacked	Losses	
	Dis-patched	Attacked					Total	R.A.A.F.
Fontenay-Crisbecq	101	94	534	75½	13 (460)	13	—	—
St Martin de Varreville	100	99	547	75½	13 (460)	13	—	—
Merville-Franceville	109	88	340½					
Maisy	116	110	528	41	13 (466)	13	—	—
La Pernelle	131	116	596½				—	—
Houlgate	116	111	418					—
Longues	99	96	540				1	—
Mont Fleury	124	111	522				2	—
Pointe du Hoe	124	115	624	127	14 (463)	24	3	—
Ouistreham	116	113	576		14 (467)		—	—

The first attack was made at 11.35 p.m. on 5th June by 95 Lancasters of No. 1 Group and 5 Mosquitos of No. 8 Pathfinder Group against a battery of 155-mm guns at Fontenay-Crisbecq which dominated the approaches to the Utah beaches to be assaulted by American troops.

Apart from the aircraft of No. 460 Squadron only one Australian pilot flew in the Lancaster force. The weather was poor with 10-10ths cloud and frequent showers, and only two of the Mosquitos dropped their markers. The Lancasters approached at an altitude of 8,000-9,000 feet and bombed the glow of the target indicators but could make no assessments. Fifteen minutes later, in similarly adverse conditions, the remainder of No. 1 Group, which again included 13 Lancasters of No. 460 but relatively few other Australians, bombed St Martin de Varreville. As the last of the early night targets, the battery at Merville was bombed at 12.30 a.m. on the 6th by half the maximum force of No. 6 (R.C.A.F.) Group (only three aircraft were captained by Australians). The reconnaissance party of paratroopers waiting to assault this position stated that the bombers "missed the battery completely", but the raid was not without effect on the garrison which was later attacked and overwhelmed by the 3rd Parachute Brigade.

The second phase of Bomber Command operations began at 3.20 a.m. on 6th June when No. 4 Group attacked a battery at Maisy which threatened both the Utah and Omaha beaches in the American sector. Australian participation was more marked as 28 of the Halifaxes, including 13 of No. 466, had Australian pilots. Conditions were rather more favourable, with broken cloud over the target, and a number of near misses was scored near the casemates. La Pernelle, a heavy battery on the east coast of the Cherbourg peninsula which was thought to be capable of firing on the approaches to all beaches, was attacked at 3.35 a.m. by aircraft of No. 5 Group (20 piloted by Australians) but no bombs fell on the gun positions. Soon afterwards No. 6 Group bombed a battery at Houlgate on the extreme eastern flank of the invasion area.

Four of the ten targets remained to be attacked, and, as all were very close to the landing beaches, bombardment was delayed until immediately before dawn so that any damage or dislocation of controls would have maximum effect at the critical period of assault. Longues was attacked by Lancasters of No. 6 (R.C.A.F.) and No. 8 Groups, with only eight captained by Australians, but the weather was poor and little success was prophesied in crew reports. The battery was also attacked at dawn by American aircraft and was shelled from the sea, but all four guns fired under independent control during the early morning. At 4.35 a.m. casemates at Mont Fleury believed to hold Russian 122-mm guns were attacked by No. 4 Group (16 Australian pilots), but in fact only one gun was installed, and, although it was slightly damaged, it fired during the assault until captured by infantry attack.

The major Australian participation was in the attack by No. 5 Group against Pointe du Hoe (St Pierre du Mont) battery close to the shore on the Omaha beach. Shortly after Oboe Mosquitos made the preliminary marking, Flying Officer Saint-Smith[3] and three other pilots of No. 627 Squadron carried out a special low-level marking technique, dropping in-

[3] F-O J. A. Saint-Smith, DFC, DFM, 403380. 12 Sqn RAF, 460 Sqn, 627 Sqn RAF. Schoolteacher; of Earlwood, NSW; b. Singleton, NSW, 29 Dec 1917. Killed in action 29 Jun 1944.

dicators in a dive from 3,000 to 1,500 feet over the gun positions. Of the Lancaster force 43 aircraft were captained by R.A.A.F. pilots; 14 from No. 463 led personally by Wing Commander Kingsford-Smith; 14 from No. 467 led by Squadron Leader Deignan,[4] and 15 from the remaining 5 squadrons including No. 61 led by Wing Commander Doubleday. All crews took exceptional pains to bomb accurately in poor to moderate visibility but they reported some scattering of the early bombing and the battery was not silenced. The final attack at 5.05 a.m. against Ouistreham was made by No. 3 Group (17 Australian pilots) and was fairly well concentrated although this battery of six positions had been greatly overestimated: only two 75-mm and some dummy guns were actually present, and one gun was able to fire during the battle.

Bomber Command thus expended over 5,200 tons of bombs during the final pre-invasion attempt to silence enemy shore batteries and 168 (14.8 per cent) of the 1,136 aircraft committed, came from Australian *Article XV* squadrons or had R.A.A.F. pilots. Although it failed in its main object, this furious scale of attack, coupled with that of 1,361 Fortresses and Liberators and nearly 300 medium bombers which attacked between dawn and the actual landings, did much to depress the efficiency of enemy installations and the resolution of the defenders. It merged into the naval shelling and the constant harassing by fighter-bombers which served to shatter enemy morale at the same time as it heightened that of the attackers.

The Allies had not expected to achieve the degree of tactical surprise which actually fell to them on 6th June. Admiral Ramsay reported that the crossing of the invasion fleets had an air of unreality about it, so completely absent was any sign that the enemy was aware of what was happening. The shore defences were already under naval gunfire before the enemy tardily replied, and with much of his communications system upset by bombing return fire was mainly ineffective. Despite adverse sea conditions, the assaulting forces swept ashore with the aid of amphibious tanks, flail tanks and other special armoured vehicles which gave close-support fire to the infantry and destroyed or surmounted the formidable fixed beach defences. Only on the difficult Omaha beach in the American sector was there any successful enemy defence. Aerial and naval bombardment had overshot, and indifferent handling of assault-craft had made the approach slow, so that for some hours the American troops who struggled ashore were disorganised and pinned down by counter-fire, unable to clear the way for further waves of men and material. In all other areas assault began promptly and continued progress was made throughout the morning.

Gaining a foothold on European beaches was by no means the end of air cooperation in the initial assault. Dieppe, Salerno and Anzio had all shown that the German Air Force might be expected to react promptly to any major threat. Thus, although Leigh-Mallory was able to advise

[4] Sqn Ldr L. C. Deignan, DFC, 404808. 12 Sqn RAF, 467 Sqn, 232 Sqn RAF. Grazier; of Quilpie, Qld; b. Toowoomba, Qld, 7 Dec 1916.

General Eisenhower that because of the degree of ascendancy gained in previous months the control of the air over the assault beaches would remain in Allied hands, a severe struggle was nevertheless expected and adequate forces were deployed to meet any emergency. One hundred and seventy-one squadrons of day fighters and fighter-bombers were available for fighter protection and direct support, as shown in the accompanying table.

Day fighters	US Ninth AF	US Eighth AF	RAF Second TAF	RAF ADGB	Total
Mustangs (P-51)	6	12	6		24
Thunderbolts (P-47)	39	21			60
Lightnings (P-38)	9	12			21
Spitfires			31	15	46
Tempests				2	2
Total of day fighters					153
Typhoon (RP fighters and fighter-bombers)			18		18
Total					171

All the day-fighter squadrons were trained and equipped for use as fighter-bombers if needed. There were also 32 additional day-fighter squadrons engaged on static defence (12 squadrons), naval spotting (9 squadrons), anti-shipping (1 squadron), and tactical or photographic reconnaissance (10 squadrons), all of which could be employed in emergency. The force available for night defence of the assault area and the shipping lanes amounted to 10 squadrons of Mosquitos but here again A.D.G.B. retained an emergency reserve of five squadrons on static defence and squadrons for intruder operations over enemy air bases. The Australian contribution to this impressive array amounted only to one day-fighter squadron (No. 453), one night-fighter squadron (No. 456) and approximately 200 individual pilots scattered widely among the British units. These men if congregated would have sufficed to staff seven or at most eight squadrons so that their participation was not high.

The Joint Air Plan and Executive Order for the combined fighter forces was issued on 25th May, setting out in detail the tasks allotted to each squadron, all operations being controlled by the Combined Control Centre at Uxbridge, but with provision for fighter direction tenders off shore and mobile control centres in the beach-heads to assume local direction of both day and night fighters. This plan allocated 36 squadrons of Spitfires[5] to maintain a constant low-level cover in daylight with six squadrons airborne over the beach-heads. Similarly three squadrons of American Thunderbolts were to conduct high-level cover in the same area. Four squadrons of Lightnings, chosen alike for their endurance and distinctive appearance which would avoid misidentification, were to patrol ceaselessly in daylight around the convoy lanes in mid-channel, commenc-

[5] The average squadron consisted of 12 aircraft plus 6 in immediate reserve with at least 25 pilots. Operationally 12 aircraft were employed but with such strong backing each unit could maintain a consistent high level of activity.

ing at 4 p.m. on 5th June. Shipping protection at night was given by up to 50 Mosquitos drawn from the 10 squadrons available. Provision was made to cover major war vessels and sections of the Mulberry artificial harbours moving independently of convoys. A pool of readiness (15 British and 15 American) squadrons was available to fill any gap in set patrols, to cover Coastal Command anti-U-boat or anti-shipping operations or the daylight protection of airborne operations. Cover to daylight bombers was a general American commitment for which the Eighth Air Force retained 33 squadrons under its own command. All squadrons maintained a state of readiness to protect their own airfields, and three Spitfire squadrons were specially detailed to thwart enemy reconnaissance; in addition 12 squadrons were retained by A.D.G.B. on home defence. Finally, a force of 18 British and 15 American fighter-bomber squadrons was allotted the task of attacking certain pre-arranged targets in the assault area.

No. 453 Squadron was one of the 36 units assigned to low-level beach-head cover, which in practice meant protection of the five invasion beaches and all ships, assault-craft and naval vessels lying in an area up to 15 miles to seaward. Aircraft were to remain on patrol for 50 minutes at a time, and, with each unit flying multiple sorties, this meant that, despite the very long hours of daylight in June, 36 fighters would be constantly in the air over Gold, Juno and Sword beaches and another 36 over Omaha and Utah. These aircraft would fly between 3,000 and 5,000 feet or below cloud ready to repulse sneak attacks of all kinds, but with the pilots especially briefed to expect torpedo and glide-bomb attacks such as had developed at Salerno and Anzio.

There was certainly no underestimation of possible danger and Australian pilots who had fought over Dieppe hoped for large-scale air action. The operational record book of No. 453 shows for 6th June 1944: "All pilots were out of bed at 4 a.m. for dawn readiness. Obviously the show is on at last." In this spirit of eager enthusiasm Squadron Leader Smith led the first Australian formation, which was not called for until 8 a.m., and was on station over the American sector 40 minutes later. The pilots suffered a similar anticlimax to that already reported by the navy. They saw a stricken ship near the Isle St Marcouf, a gun position lying in a waste of bomb craters, medium bombers laying a smoke-screen to protect Omaha, but no sign at all of the German Air Force. No. 453 flew three further patrols over the same area later on 6th June: from 1.40 to 2.30 p.m., 5.50 to 6.40 p.m., and 10 to 10.50 p.m., but all (even the dusk one when enemy attack was especially feared) were uneventful. Smith led three of the formations and Flight Lieutenant McDade the remaining one; seven Australians flew three sorties and ten flew two, a strenuous performance as the total airborne time of each trip was at least two hours, although less than half was on patrol station. This Australian contribution was by no means abnormal, for the astounding total of 1,547 day-fighter sorties was made during the day on beach-head cover duties, a scale lavish enough to meet any eventuality. Forty other

Australian fighter pilots flew one or more sorties that day, beginning with one man of No. 611 Squadron, who was in time to see the last formations of night bombers attacking coastal batteries, and extending to beyond last light. Only once, during a patrol of No. 222 Squadron between 3.50 and 4.40 p.m., did any Australian see enemy aircraft, and then, although four Ju-88's were chased from the area, no combat ensued. The Allied airborne landings had commenced 15 hours and the seaborne assault eight hours earlier.

This, however, was only part of the Allied fighter effort. Over 1,800 sorties were made to escort daylight bombers of the American Eighth Air Force and A.E.A.F.; nearly 500 sorties were flown by Lightning aircraft over the shipping assembly and crossing lanes in mid-Channel, but both these tasks were American commitments. There were 40 Australians in the pool of readiness squadrons but they were called upon only to escort the evening delivery of the 6th Air Landing Brigade to glider reception areas near Caen, and to fly coastal shipping protection patrols. These rear duties in general produced no significant incidents.

Similarly No. 137 Squadron, armed with Typhoon aircraft carrying rocket projectiles, which was given the special task of attacking enemy vessels attempting to enter the eastern approaches to the assault area, maintained a strike force of six aircraft at continuous readiness throughout the day, but made no sorties except a dawn patrol from Cap Gris Nez to Flushing, which saw no enemy shipping. Four Australians with the three squadrons assigned to prevent enemy reconnaissance, flew several patrols to seaward of the south coast ports and investigated unidentified radar plots, but had no encounters with the enemy. Thirty-six Australians were also at this time serving with the 12 squadrons of A.D.G.B. retained for general daylight protection of the United Kingdom, but although they duly performed defensive patrols on 6th June all flights were without incident.

More active were the squadrons detailed on 6th June to assist naval Seafire aircraft in spotting for naval ships bombarding the assault area. Six Australians participated in these patrols which played an important part in the outstanding success of the naval gunfire support. The Mustangs flew in pairs, the leader concentrating on directing the guns while the other acted as escort, and at the end of their main duty both sought out for strafing attack minor targets of opportunity such as road traffic, field guns, or buildings. Two squadrons remained on this task throughout the assault period but three others were lent only for the first day and then resumed their own role of tactical reconnaissance. Reconnaissance was a joint Anglo-American assignment and altogether over 450 sorties were flown on 6th June, the most significant concentration of Australians being 8 pilots with No. 168 Squadron who flew 12 of the 36 patrols made by that unit.

On all defensive and reconnaissance tasks Allied fighters thus flew over 5,000 sorties during the opening day of OVERLORD; with nearly 4,000 heavy-bomber, 1,000 medium and light-bomber, and 660 fighter-bomber

sorties, the grand total approached 11,000 sorties exclusive of Coastal Command and airborne transport operations. This signal demonstration of Allied resources, however, did not produce immediate recognisable success. The bombing was effective more in its sound and fury than in material destruction, and the defensive plan had been evolved according to very inflated estimates of potential enemy air activity. Taking naturally the most pessimistic view that bases in France would not be out of action and that tactical surprise would not be achieved, so that the German Air Force would receive ample warning to redeploy forces from elsewhere to oppose the assault, the planning staffs concluded that 1,750 enemy aircraft would be committed from the outset.[6] In fact, up to the last, the German High Command was undecided as to where the Allied blow would fall, and, hard pressed on the Russian, Mediterranean and home fronts, refused to tie down more than a minimum of its total forces by basing them too far westward. Thus on 5th June *Luftflotte 3* controlled only about 800 aircraft, spread widely between southern France and Belgium, of which only three-quarters could be used as a striking force against invasion.[7] True, preparations on paper for fighter reinforcements to any threatened area had been made but in the absence of air reconnaissance and accurate Intelligence of Allied intentions, these would not be speedy enough to interfere in the critical opening stages of the battle. Moreover both the long-range bombers and anti-shipping force which made up 45 per cent of *Luftflotte 3* resources had been subjected to such strain in preceding months that they were indifferently trained and irresolute.

In the event during the first 24 hours of invasion only 319 German air sorties were made, hardly 3 per cent of the Allied effort.[8] Even this small effort was ill organised because the sheer weight of Allied attack virtually forbade any bomber activity in daylight, the ground-attack force

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[6] Their estimate was:

Long-range bombers	385
Ground attack	50
Single-engined fighters	745
Twin-engined fighters (day)	55
,, ,, (night)	395
Long-range reconnaissance	85
Tactical reconnaissance	25
Coastal	10
Total	1,750

[7]

	L.R.B.	G.A.	S.E.F.	T.E.F.	L.R.R.	T.R.	C.	Total
S. and S.W. France south of 46°	180	—	15	20	15	—	5	235
France (west of Seine to 46°)	90	75	50	35	35	25	—	310
France (east of Seine) and Belgium	30	—	105	90	10	—	—	235
Holland	25	—	—	—	10	—	—	35
	325	75	170	145	70	25	5	815

[8]

Jagdkorps II	by day	121	
	by night	35	
Fliegerkorps II		51	
Fliegerkorps X		11	anti-shipping
Fliegerkorps IX	by day	9	long-range bombers
	by night	15	long-range bombers
Fliegerdivision 2		53	anti-shipping
Aufklarungsgruppe 122		24	reconnaissance
		319	

was too small to make more than a demonstration, and the Germans were prevented from gaining any over-all picture of the ground situation from which they could plan coordinated counteraction. This delay was felt keenly, as the Germans had become firmly convinced that the best hope of defeating amphibious assaults of the kind which the Allies had developed against Europe lay in the first few days of fighting.

Although the needs of defence were paramount on 6th June, the Allies did not neglect opportunities of offensive air action designed to influence the course of battle. Approximately 1,100 American heavy bombers were sent out during the day to block roads beyond the predetermined Allied objectives for the day, with special attention to towns on the line Coutances-Caen-Lisieux through which enemy reinforcements might be rushed forward. American medium bombers also turned as quickly as possible from attacks on coastal batteries to towns such as Valognes, Carentan and Falaise in the immediate path of the Twenty-first Army Group. Bomber Command could not be committed until nightfall, but on a much smaller scale Second Tactical Air Force lent its weight to this campaign against enemy lines of communication. Indeed in strict point of time No. 2 Group, which had been specially trained in night harassing techniques, began to attack the fringes of the assault area during the night of 5th-6th June while the coastal bombardment was getting under way. The plan adopted was to patrol roads, railway lines, rivers or canals until significant movement was observed, then to release flares and attack with bombs, cannon or machine-guns as opportunity offered. In ideal circumstances bombs would be dropped immediately in front and behind road or rail traffic which would then be strafed while temporarily halted.

On 5th-6th June 98 Mosquitos of No. 2 Group were sent out to patrol in the rough quadrilateral bounded by the sea and the towns of Rennes, Le Mans and Lisieux. No. 464 Squadron at Gravesend had begun the day by noting in its diary: "A chilly morning with high wind; however an air of expectancy pervades the squadron—something seems to indicate that we have not long to wait", and this belief became certainty when the unit was ordered to supply 20 aircraft that night, a scale far in excess of recent operations. Little traffic was found on the roads of northern France as the enemy had not yet awoken to his danger, but 18 of the pilots found suitable bridge or rail and road junctions to attack, direct hits being achieved by Flying Officer Dunkley[9] near La Croix and by Flying Officer Rowell[1] near Lisieux. Only slight enemy ground fire was encountered but the Australians lost Squadron Leader A. G. Oxlade, a very experienced and pugnacious flight commander. He was coned by searchlights and his Mosquito damaged by flak while flying at 2,000 feet south of Montfort and, though he managed to extinguish the fire, both

[9] Sqn Ldr E. H. Dunkley, DFC, 413358. 4 Sqn RAF, 464 Sqn. Clerk; of Granville, NSW; b. Parramatta, NSW, 13 Feb 1920.

[1] F-Lt R. G. Rowell, 414429; 464 Sqn. Clerk; of Brisbane; b. Orpington, Kent, England, 24 Aug 1921.

engines failed near Yvetot. His navigator, Flight Lieutenant Shanks,[2] on orders, managed to bale out before the aircraft crashed and he went into hiding disguised as a French peasant. Although closely surrounded by enemy troops stationed on the "invasion coast", some actually billeted in the same farm house, Shanks' character and gifts were equal to the task of sustaining this deception for three months until the arrival of Allied troops in the area. On 16th June at Mont Candon he was able to observe the launching of the first flying bomb from that site.

There were relatively few Australian pilots at that time serving with Mitchell and Boston squadrons of Second Tactical Air Force; only three operated by day against enemy transportation targets on 6th June and two more helped to lay smoke-screens off Barfleur and Le Havre. The British share in close-support operations that day was provided mainly by the 18 squadrons of Typhoon aircraft detailed by the Joint Air Plan and Executive Order, and although R.A.A.F. pilots were spread somewhat thinly among these units they did join in the full range of operations. In the initial stages of the assault targets were pre-selected, as when three Australians of No. 247 Squadron attacked field guns one mile west of Cabourg a few minutes before 8 a.m. The rocket-firing Typhoons of Nos. 121 and 247 Squadrons later attacked a radar station, two *châteaux* thought to be enemy headquarters, and some military encampments. Requests then began to flow into the Combined Control Centre at Uxbridge for attacks against specific targets identified either by the ground troops or by air reconnaissance. Particular attention was paid to enemy traffic on the Caen-Bayeux road, and also to reinforcements, including tanks, which were seen moving from Lisieux towards Caen. Several vehicles were destroyed during each attack, but they were well protected by small-calibre guns and three Australians failed to return that day. The only one to survive was Pilot Officer Martin[3] who claimed to have disabled one tank on the Lisieux road and was about to attack a second when his Typhoon was set on fire while only a few hundred feet from the ground. Badly burned on his arms and with a broken leg he evaded enemy patrols searching for him, was rescued next day by French patriots, and later posed as a deaf-mute refugee who had been injured in an Allied bombing raid.

On 6th June while all eyes were turned on the unprecedented application of air power in the skies of Normandy, the three Australian squadrons of Coastal Command spent an uneventful day. This was again a consequence of the Allied success in disguising the time and place of attack, so that the enemy had been unable to bring forward his U-boats and light naval craft to oppose the assault convoys. They had been held in readiness at Biscay and North Sea ports but could not be ordered to sea in time to reach action stations during the critical first day. Coastal Command therefore mounted only a slightly increased effort on 6th June and reserved

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[2] F-Lt D. McK. Shanks, 400839. 456 and 464 Sqns. Bank clerk; of Swan Hill, Vic; b. South Yarra, Vic, 6 Nov 1909.

[3] F-O G. K. E. Martin, DFC, 14221; 609 Sqn RAF. Railway porter; of Penshurst, NSW; b. Granville, NSW, 16 Sep 1920.

its full resources for the climax when enemy naval units should attempt to break into the English Channel in strength. Thus No. 461 Squadron, specially trained for night operations, sent out only one Sunderland on 5th-6th June and another on the evening of the 6th, while No. 10 Squadron also had a single aircraft flying that day from dawn until evening without any sight of the enemy in the South-Western Approaches. Similarly, although seven squadrons of Beaufighters, Wellingtons and Albacores were disposed at stations in No. 16 Group to guard the eastern end of the Channel, there was little immediate call on them.

At 8.10 a.m. on 6th June No. 455 sent forward from Langham to Manston six Beaufighters fully bombed-up with two 500-lb plus two 250-lb medium-cased bombs and these aircraft stood by at instant readiness throughout the day. It was not until 10 p.m. that four of them with three others of No. 489 Squadron were sent out on an armed reconnaissance of the coast between Fecamp and Boulogne. Deteriorating weather and failing light caused the formation to split up and, although one Beaufighter of No. 489 sighted a group of E-boats, an attempt to home the other aircraft to the position was unsuccessful. Simultaneously a single R.A.A.F. Beaufighter was sent to patrol off Dunkirk but found no enemy naval activity in that area. In addition to these sorties from Manston, two Beaufighters from Langham had earlier made a short reconnaissance off the Dutch coast but this also was uneventful. As in the west, the clash between Allied air and enemy naval forces was delayed by the element of surprise achieved in the main operation.

By nightfall on 6th June the Allied commanders had solid reasons for cautious optimism concerning the success of the opening phase of OVERLORD. It was true that in none of the five assault sectors had either British or American troops attained the objectives set out in the plan, but only around the Omaha beach was there any cause for anxiety. The assault had gone largely as intended despite adverse weather and sea conditions; losses of troops and equipment had been light and of ships almost negligible; the crust of the much vaunted Atlantic Wall had been cut through. In the air, matters were particularly favourable. Looking back it can be seen that much of the Allied air bombing failed to achieve the precise results desired—for example, complete neutralisation of enemy shore batteries—but in large measure the plan rather than the execution was at fault and a sufficient effect was gained by air action to favour the whole enterprise. Much of the defensive flying would appear to have been wasted in that it had nothing to ward off, but it had certainly provided for all contingencies, and it set a pattern of Allied domination which was to colour and restrict enemy counter-action both in the air and on the ground. The tasks given to the air forces had been well performed at negligible cost and the appetite of aircrews had been whetted for increasingly offensive tasks as their combined weight thrust the German Air Force off balance.

CHAPTER 6

SUPPORTING THE LODGEMENT

THE primary attack phase of OVERLORD was destined to last for six days, and it was not until 12th June, when the Omaha beach-head had achieved a depth of up to 20 miles and had been expanded laterally to link with the others into an unbroken lodgement, that the possibility of a successful enemy counterstroke on the Cherbourg peninsula faded. Throughout this period the employment of all elements of the Allied air forces was purely tactical, their chief contribution consisting of the protection of the army from enemy air attack, the disruption of German communications and direct intervention in local actions. All these objects had been plain on 6th June so that there was merely a change in emphasis between the tasks and a shift in application once the diversionary use of air power to achieve initial surprise could be dispensed with.

Heavy and continuous air attacks against communications were ordered by General Eisenhower to deny the enemy freedom of movement to prepare and launch counter-attacks and to reduce the rate of German reinforcement to a level lower than that of the Allies. Heavy and medium bombers were directed on to road and rail centres while light bombers and fighter-bombers attacked the bridges across the Loire and in the Paris-Orleans gap. The most important bridges over the Seine had already been cut and, although it was appreciated that the enemy would, as in Italy, work feverishly to keep some routes open, traffic would inevitably be canalised, and this in turn would provide profitable opportunities for the ubiquitous swarms of fighter-bombers. The problem of creating a "traffic desert" in northern France was far more difficult than that faced in Italy during the STRANGLE campaign, but the air resources to achieve this aim were far larger and better coordinated, and it seemed likely that there would be less interference by the weather; the Germans could hope for less relief from darkness during the short midsummer nights and a larger Allied night-harassing force was ready and trained to continue attacks round the clock.

It was estimated that any German troops in immediate reserve stationed between the Seine and the Loire would be committed to battle by 7th June, and, in general, attacks on these forces were left to the fighter-bombers, but several heavy bombing attacks were also made on the 6th-7th to block the key rail and road centres within this area. The targets chosen were Vire, Chateaudun, Lisieux, Argentan, St Lo, Caen, Coutances, Conde-sur-Noireau and Acheres, in each case fractional forces of Bomber Command, roughly equivalent to those which the previous night had bombed coastal batteries, being available for the task. In three of the raids Australian squadrons and individuals played a significant part, and description of these will serve to indicate the degree of success and the limitations of this use of air power.



(*R.A.A.F.*)

A Spitfire of No. 453 Squadron at Ford on D-day being prepared for take-off for close-support operations with the assaulting ground forces. All Allied aircraft at this time, with the exception of four-engined bombers, were painted with distinctive black and white stripes for easy identification.



(*R.A.A.F.*)

Spitfires taking off for a patrol over the Normandy beach-head.



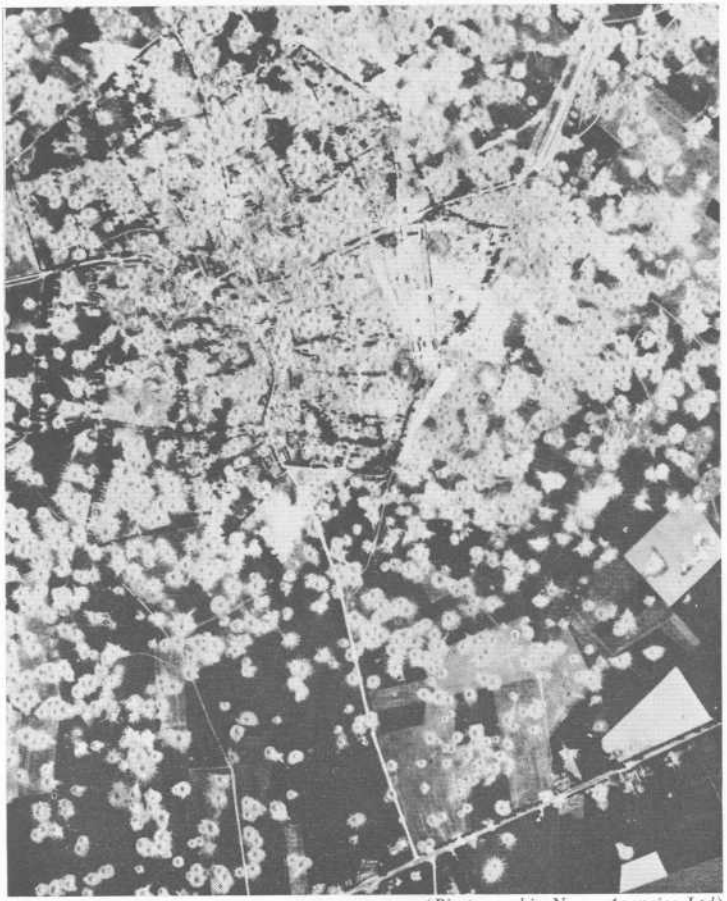
(*Imperial War Museum*)

A low-level oblique of the Normandy beaches taken by a R.A.F. reconnaissance aircraft. German troops working on the beach defences run for cover when startled by the aircraft.



(*Imperial War Museum*)

Landing-craft make their way to the shore in the D-day landings on 6th June 1944. Other craft have discharged troops and vehicles which are making their way inland.



(Photographic News Agencies Ltd)

The effect of saturation bombing by the U.S.A.A.F. and Bomber Command on a large constructional work in the Pas de Calais area, June 1944.



(R.A.A.F.)

A composite aerial photograph of a "Mulberry" artificial harbour at the Normandy beach-head after the landings on 6th June 1944. The use of the prefabricated port greatly simplified the problem of supplying the Allied armies in France.



(*R.A.A.F.*)

On 25th June 1944 No. 453 Squadron moved from England to a landing ground in a barley field in Normandy. Ground staff setting up camp at their beach-head base.



(*R.A.A.F.*)

Pilots of No. 453 Squadron sightseeing outside Bayeux Cathedral, July 1944. *Left to right*: Sqn Ldr D. H. Smith; F-O's K. K. Lawrence, J. F. Olver; F-Lt V. A. Lancaster; F-O M. West; F-Lt P. V. McDade.

Vire was not only an important junction on the railways linking both Caen and St Lo with the lateral Paris-Granville main line; through it ran the principal highway along which enemy reinforcements could be rushed up from Brittany. The aiming points chosen were two railway bridges but it was expected that the spread of bombing would block roads through the town. There had been some discussion of the political advisability of attacking built-up areas for the purpose of making road-blocks, but urgency overcame doubt, as any delay, however slight, imposed on the Germans in the first two days of OVERLORD was expected to be important. Accordingly, a few minutes after midnight on 6th-7th June, 107 Lancasters, including 24 from No. 460, attacked Vire from a height of 4,000 to 5,000 feet. The Australians saw the target indicators burning close to both bridges, and 414 tons of bombs were rained on the town. Enemy ground defences were slight, but some night fighters appeared and two crews of No. 460 reported inconclusive combats while a third failed to return to base. Similarly accurate bombing was achieved two hours later by 104 Halifaxes of No. 4 Group at Chateaudun, a rail centre west of Orleans which was also an enemy armoured-unit training centre. No. 466 Squadron dispatched 14 aircraft for this raid and 16 other Halifaxes were piloted by Australians, many of whom actually saw bombs falling in the railway yards or brought back night photographs which clearly showed the aiming point and target indicators.

Argentan, 35 miles south of Caen, and astride most of the important roads and railways leading to the British assault area, was attacked on the 6th-7th by Lancasters of No. 5 Group, and, next day, by large formations of American bombers. Nineteen crews from No. 463 and 17 from No. 467 joined in this raid and all returned safely, although some complained bitterly that they had been fired on by Allied naval vessels.[1] All the Australians were enthusiastic about the results of their attack and photographs taken after the second raid showed considerable damage to railway facilities and warehouses and other buildings adjacent to the marshalling yards.

After these initial raids close to the assault area Bomber Command targets were chosen along a wider arc with the object of drawing a tactical line beyond which it was hoped that reinforcements either from

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[1] This was a recurrent difficulty in complex operations. Theoretically all major flights were made known to the naval forces, but with nearly 5,000 ships of varying types in the OVERLORD area the task of passing information to all concerning the exact time of passage of each bomber stream was tremendous. Each ship in the danger area was free to fire under independent control; and some were not well trained to distinguish friend from foe at night.

The problem increased when individual army commanders ashore began to declare restricted flying zones in which anti-aircraft guns would have unrestricted right to fire at any time. This hampered the planning of air operations in support of these very commanders, and Leigh-Mallory pressed, although unsuccessfully, for the appointment of a single air defence commander for the entire assault area and rigid central control of gunfire. In view of the comparatively low level of German air attack the air force wished army and navy authorities to accept the risk of sneak raids during the comparatively short overhead passage of Allied bomber forces.

Aircrews were themselves responsible for some of the incidents, because of bad navigation or poor timing. Weather and the need to mount operations at short notice also played a part in this consistently intractable problem of satisfying the opposing safety requirements of the three Services. Mistakes were almost inevitable, just as sometimes bad coordination or sudden changes in the battle area entailed Allied air attacks on friendly troops when the blameless pilots were bombing the precise targets given to them. These were unfortunate but almost ineradicable hazards of this type of warfare.

the *Fifteenth German Army* in the Pas de Calais, or from farther east, would not be able to move by rail. The French and Belgian railways had already suffered heavy attack during the preparatory phase of OVERLORD, and the cumulative effects of damage to tracks, rolling stock, repair shops and communication gear were slowing down the whole system until it was capable of satisfying only minimum enemy requirements. It was hoped that further heavy raids coupled with enormously increased German needs would cause major blockages far from the actual battle area. These wounds would then be kept open by regular attacks by medium bombers and, if the enemy took to the roads at these enforced detraining points, again he would become vulnerable to fighter-bomber attack.

The first targets of this type chosen on 7th-8th June were four rail centres close to Paris, Versailles-Matelet, Palaiseau-Massy, Juvisy and Acheres. Only one third of the night-striking force was employed but bombing was concentrated and appreciable damage was done to bridges and flyovers as well as to tracks and buildings. Enemy defences were much stronger than over the beach-head and 28 aircraft, including 5 piloted by Australians, of the 337 sent out failed to return.

Of the R.A.A.F. squadrons, only Nos. 463 and 467 operated on 8th-9th June, when they provided 16 and 14 Lancasters respectively in a raid against railway yards at Rennes in Brittany. Weather was poor throughout the outward and return journey, and because of difficult landing conditions at Waddington aircraft of No. 467 were diverted to another landing field, but even there they had to circle for 45 minutes before visibility improved sufficiently for them to put down. Despite these adverse conditions, crews were confident that their bombing had been accurate, and this was confirmed by reconnaissance next morning when fires were still burning and craters were seen in the passenger station, maintenance sheds and goods yards. Other forces the same night attacked railway facilities at Fougeres, Alencon, Mayenne, and Pontaubault in this coordinated attempt to block all the main lines leading from Brittany to Caen, and all met negligible opposition. No. 617 Squadron R.A.F. was also given the special task of attacking the railway bridge and tunnel at Saumur where a main line from the south-west crossed the Loire Valley. Squadron Leader Shannon was detailed as a pathfinder for this operation but he was forced to return early because of engine trouble. Flying Officers Kell and Stanford flew Lancasters in the main group of 19 which carried new 12,000-lb Tallboy[2] bombs for use against the tunnel, while Flying Officers Ross and Carey each carried eight 1,000-lb bombs to attack the bridge. One hit was achieved on the tunnel roof which caved in, and two very large craters cut the tracks in the southern approaches. The bridge was also damaged and when this area was liberated more than two months later the line was still blocked.

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[2] The 12,000-lb bombs used in previous area attacks had been virtually three 4,000-lb canister bombs joined together. This new bomb was a well-designed missile with vastly superior ballistic properties, and able to penetrate up to 12 feet of concrete because of its high terminal velocity. For additional details of this bomb see *No. 5 Group, Bomber Command* (1951).

There was only one attack against rail centres on 9th-10th June when Etampes in the centre of the Paris-Orleans gap was the target for 117 Lancasters. Again the raid was successful in creating major damage, but the Germans showed their active concern at the effects of this remorseless campaign by sending up a very strong force of night fighters. Among six Lancasters lost was one piloted by Pilot Officer Giddings[3] of No. 97 Squadron; Warrant Officer Hansen,[4] a rear gunner of the same unit, claimed to shoot down one enemy aircraft during this action. The same general conditions prevailed on the following night when Acheres, Dreux, Orleans and Versailles were all bombed, because, with most of the bridges over the Loire and Seine already destroyed, the network of railways south-west of Paris was of vital importance to the Germans. Crews of No. 460 attacking Acheres reported several combats with night fighters, as did those of Nos. 463 and 467 over Orleans, but, although 18 bombers were lost, neither guns nor fighters could deflect the attacks and all these centres were damaged. Nor could bad weather on 11th-12th June prevent further raids on Evreux and Palaiseau-Massy in the east of the zone of tactical interdiction against Tours on the middle Loire and Nantes at the mouth of that river. The ring of rail interdiction had almost been closed, and the Bomber Command campaign ended on 12th-13th June with one attack on Poitiers to block the Bordeaux-Tours line, and four attacks in the Pas de Calais (Amiens-St Roch, Amiens-Longeau, Arras and Cambrai) to distract the *Fifteenth German Army* and prevent any swift movement westward.

Bomber Command, besides attacking other targets, made nearly 3,000 sorties against communication centres during the week 6th-12th June 1944. This was vastly in excess of the maximum sustained effort of approximately 5,000 sorties per month forecast by Air Chief Marshal Harris in January 1944 when he was pleading that Bomber Command should continue to attack "suitable industrial centres in Germany" instead of engaging in a tactical role against guns, beach defences, communications and dumps in France during the OVERLORD period. It was also much larger than the 7,300 sorties per month which the Air Staff had at that time suggested was a more realistic figure having regard to the expansion of Bomber Command and the comparatively short duration of the flights over France. As has been seen, Bomber Command, although opposed in principle to the "error of diverting our best weapon from the military function for which it has been equipped and trained, to tasks which it cannot effectively carry out", loyally and energetically carried out its part in the final plan. The burden fell heavily on ground staff and members of supply organisations but their fierce pride and sense of positive contribution helped them to keep all squadrons at a surprisingly high level of main-

[3] P-O B. W. Giddings, 416949. 463 Sqn, 97 Sqn RAF. Carpenter; of Millicent, SA; b. Millicent, 19 Mar 1915. Killed in action 10 Jun 1944.

[4] F-O E. H. Hansen, DFC, 415648. 97 and 83 Sqns RAF. Radio announcer; of Kalgoorlie, WA; b. Kalgoorlie, 26 Jun 1923.

tenance.[5] No. 460 Squadron flew on five out of the seven nights, dispatching 69 Lancasters against rail centres and 38 against other targets; each of the other three R.A.A.F. squadrons operated on four nights. All units had a reserve of aircrews but such intensive operations inevitably meant that some crews flew consecutive trips and in fact Pilot Officer Perfrement[6] of No. 75 Squadron R.N.Z.A.F., who began his operational tour at the beginning of June, completed 10 raids in 13 nights.

As a counterpart to this night bombing of marshalling yards heavy daylight attacks were made against road and rail bridges. The main weight of 22 raids by heavy bombers of the American Eighth Air Force and 53 raids by the A.E.A.F. in the period 6th-12th June fell on the principal bridges over the Loire, two over the Seine which had survived the earlier campaign, and a few selected points between Orleans and Paris. Some 2,000 sorties and the expenditure of 4,000 tons of bombs largely defeated the frantic enemy attempts to repair or replace these crossing points. Only four of the Loire railway bridges were still undamaged on 13th June, and the level of rail traffic crossing from south of the river had fallen to two trains per day compared with 57 per day three months previously. Eight of the 19 road bridges selected for attack between Tours and Nantes were demolished during this same campaign. Rail traffic over the Seine was virtually impossible, and the six rail-routes in the Paris-Orleans gap which had to take all westbound traffic were cut again and again after enemy repairs so that each was inoperable for approximately 50 per cent of the period. Australians played a negligible part in this phase of the interdiction campaign.

The OVERLORD plan placed great emphasis on this bombing campaign designed to disrupt or delay an enemy build-up—reducing the outcome of the assault to a slide-rule calculation of the opposing forces which at any one time could be placed and maintained in the front line. The true test of this employment of air power lies therefore not so much in the technical accuracy of individual crews in hitting their allotted targets (which was throughout consistently satisfactory), but rather in the measure of the limits placed on enemy freedom of action. The total results of the campaign had undoubted serious effects on the Germans, but, as it is unlikely in future that ground forces will have a blank cheque on such tremendous air resources, it is pertinent to inquire whether a comparable result might have been achieved by more economical selection of targets and planning of operations.

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[5] Aircrews as well as ground staff were imbued with a sense of positive contribution, and this factor of keenness made possible the unexpectedly high level of operations. Losses except on a few occasions were light but there were many examples of magnificent airmanship which defied enemy defences, bad weather and ill chance. Typical of many exploits during the first week of the invasion was the cool efficiency and courage of Warrant Officer A. W. Hurse, of Carisbrook, Victoria, a bomb aimer with No. 75 Squadron, on the night of 11th-12th June. The Lancaster was over Nantes when an anti-aircraft shell exploded in the cockpit seriously wounding the pilot and flight engineer. Hurse, whose only experience as a pilot was a small amount of dual instruction on the Stirling type of bomber, seized the controls and managed to fly the aircraft 400 miles back to England and make a safe landing.

[6] F-O J. D. Perfrement, DFC, 421504; 75 Sqn RNZAF. Farmer; of Currabubula, NSW; b. Toowoomba, Qld, 30 Nov 1917.

Although the Germans gave immediate priority to the rail movement of reinforcements from Brittany, the south of France and Germany, none of these arrived during the first week, and the Allies, while linking up their separate beach-heads, had to face only the immediate enemy reserves. The *3rd Parachute Division* was ordered eastward from Brest on 6th June, but did not arrive at St Lo until the 16th and then only by forced marches in which bicycles and horse-drawn vehicles had played a prominent part. A battle group at Quimper waited four days for trains to arrive but even then took a further six days to reach Rennes, whence it had to go on by road. The *2nd Panzer Division* in the Toulouse area also waited until the 10th for trains and suffered much harassing from the Maquis before reaching the Loire Valley on the 16th. From this point onwards the journey was continued by road. The *9th* and *10th SS Panzer Divisions,* which in May had been sent to Poland, were hastily recalled, but some were detrained as far back as Metz because of over-strained rail capacity in eastern France, and these vitally important units did not reach the front line in Normandy until the end of the month. Such were the more obvious fruits of the campaign against communications, although it is of interest to note that the *Fifteenth German Army,* north of the Seine, which could most readily have rushed reinforcements (despite the Seine interdiction) to the help of the *Seventh Army,* was completely immobilised by the success of the sedulously fostered Allied deception plan which threatened an apparent major invasion between Boulogne and Calais. Even a moderate level of German reconnaissance would have exploded this bubble of make-believe, and thus the hidden hand of air power was as effective as its most ostentatious blows in bringing about in Normandy the conditions which Allied ground commanders wished.

Inside the tactical ring drawn by bombardment of enemy rail and road centres all elements of the Allied air forces were ceaselessly active. On 7th-8th June No. 460 sent 24 Lancasters in a force which bombed fuel depots and tank harbours in the Foret de Cerisy nine miles north-east of St Lo. The main campaign against enemy forward dumps was conducted by medium bombers of the American Ninth Air Force in daylight, and, although the Germans were very thorough in their methods of dispersal in wooded areas, so that much of the bombing did no damage, losses however small were significant at a time when few supplies would be brought forward and the enemy was living off these dumps.

After the first day of assault, fresh attention was paid to airfields in northern France to which it was expected that the *Lutfwaffe* would quickly move ground-support and fighter aircraft. Beginning on the evening of 7th June with a raid of 137 Fortresses against Kerlin Batard, the American Eighth Air Force by 12th June had made 40 attacks involving 1,860 sorties in which 4,000 tons of bombs were dropped. Bomber Command joined in the campaign only on 8th-9th June when forces of approximately 100 heavy bombers (a size which had become almost standard for these tactical targets) were sent against airfields at Laval, Le Mans,

Flers and Rennes. Only at Laval was there significant R.A.A.F. representation, No. 466 providing 16 Halifaxes while 17 from other squadrons were captained by Australians. This force set out through thick cloud and rain and with much inconvenience en route from static electricity. The target area was completely obscured and the master bomber instructed crews to bomb from below cloud; consequently most aircraft attacked from an altitude of 3,000 feet or even lower. Two crews of No. 460 could neither find the target indicators nor make contact with the master bomber and thus failed to attack at all, and, despite the pains taken by the majority to ensure precision bombing, the raid was a virtual failure. Subsequent reconnaissance showed that the damage was mainly confined to dispersal areas on the east side of the airfield where 55 craters were caused, and there were only six craters on the main landing area with a few buildings slightly damaged. This was a poor result for the expenditure of 300 tons of bombs because it would not take long to repair the main area sufficiently to maintain the types of aircraft, fighters and fighter-bombers, which the enemy might wish to employ from Laval.

Compared with the size of the air forces at his disposal, the enemy possessed a wealth of airfield sites nearer to the assault area than were the Allied fighter and fighter-bomber bases in the United Kingdom, so that the effort to readjust this adverse geographical balance, although expensive, could be justified until Allied bases were available in France. The other Bomber Command attacks were better placed and, in conjunction with the heavy American raids during which up to 12 airfields were attacked at the same time, they provided serious embarrassment to the German Air Force. It was, however, the cumulative effects of direct attack, the more general dislocation of supply and communications, and the constant presence of large numbers of all types of Allied aircraft over Normandy which finally forced the enemy to withdraw to bases near Paris.

The German Air Force in France had lost the initiative on 6th June and was never able to regain it. Reinforcements began to arrive as promised but they were projected into a hopeless situation and employed hastily on short-term objectives. Two hundred additional fighters were sent to France before the evening of 7th June and another 100 by the 10th; 45 torpedo aircraft joined the anti-shipping force in southern France; 90 bombers (mostly from Italy) were transferred to Belgium. This gave a total of 1,000 aircraft which could be used against the Allied bridgehead. There was, however, a grave shortage of ground-attack aircraft for which the hard-pressed German army commanders were constantly appealing, so *Luftflotte 3* diverted an ever-increasing proportion of its fighter resources to close-support work. This was an act of despair since German (unlike Allied) fighter pilots were not fully trained in the dual role and therefore were inefficient, while at the same time fighter defences were seriously compromised. This expedient was abandoned at the end of the first week on direct orders from Berlin, having accomplished little. The long-range bombing force could operate only at night, and then, because

of the strength of shipborne and shore defences, was forced to fly so high that it had great difficulty in identifying targets and bombing accurately. Again, after a week of negligible success, the role of *Fliegerkorps IX* (which controlled the bomber units) was changed to that of mine-laying off the beach-heads, from which the most that could be hoped was some delay in the rate of the Allied build-up. Even greater disappointment came during the first week at the failure of *Fliegerkorps X* and *Fliegerdivision 2,* which controlled all the specialist anti-shipping squadrons in the south of France, to make an effective stroke against the vast invasion fleets. Indifferent training and maintenance standards permitted only relatively weak raids which for the most part failed to penetrate Allied defences.

The Allied Expeditionary Air Force thus had not only great numerical superiority but far more effective choice in its conduct of operations. On 7th June the emphasis was necessarily still largely defensive, although the balance between beach-head and shipping cover was reversed, only 708 fighter sorties being flown over the beaches while 1,519 were devoted to maintaining the tremendous flow of men and materials across the Channel. The escort of airborne operations entailed a further 1,658 fighter sorties while fighters of the American Eighth Air Force also flew 1,445 sorties on bomber escort duties. Reconnaissance duties again accounted for over 600 individual trips with a larger proportion devoted to photographic tasks. All these operations were carried out almost exactly as planned, with negligible reaction from the enemy; even at this early stage there was a noticeable increase in purely offensive Allied flights, fighter-bombers logging 1,213, rocket-carrying fighters 285, and fighters on offensive patrols 238 sorties compared with 665, 24 and 73 respectively the day before.[7] After 7th June, with the tide running so swiftly for the Allies, it was possible for Air Chief Marshal Leigh-Mallory to switch many more squadrons to an offensive role and almost all the single-engined units of Second T.A.F. became involved in close-support or scouring operations. At this stage it becomes difficult to distinguish in squadron records between the various roles, because, with units mounting several patrols daily, one might be a defensive flight or interception, one an armed reconnaissance seeking targets of opportunity, and one a dive-bombing mission against a pre-selected target, but frequently the intention is not shown.

Australian pilots of No. 453 Squadron spent a strenuous but unexciting week flying over the beach-heads. On 7th June Squadron Leader D. H. Smith led three of the four patrols; nothing was seen until the evening when, while American gliders were putting down at St Mere Eglise, the Spitfire pilots had a momentary glimpse of 12 aircraft thought to be

[7] All figures conform to the artificial day adopted for reporting purposes at this time, running from 9 p.m. instead of midnight. In fact as Double British Summer Time was in force and clocks were advanced two hours it was light until 11 p.m. at this time, and part of the fighter effort for each day is thus credited to the next day's operations.
The use by different authorities of arbitrary time sequences has created a statistical problem of great magnitude for research workers. Figures quoted in this chapter and elsewhere are valid only within the framework of the dominant time system in vogue.

FW-190's but the Australians could not make contact. Some anti-aircraft fire was experienced at the southern end of the patrol area between Carentan and Isigny. Next day three uneventful patrols over the American sector had been completed before deteriorating weather forced the abandonment of late evening cover, and the Australians could not fly at all on the 9th when the whole south of England and the Channel area was blotted out.

This enforced cessation of beach-head defences gave a great opportunity to the enemy, but the *Luftwaffe* was too far off balance to exploit it. The lack of air cover did emphasise, however, the vital need to push ahead with temporary landing fields in the assault area, and gave point to Leigh-Mallory's growing insistence that the Twenty-first Army Group should capture Caen and its well-developed airfield sites as soon as possible. Apart from the strain on pilots of flying multiple trips each of two hours duration day after day, the time lag of 30 minutes transit time between base and danger point was a tactical disadvantage which could be borne only for a limited period and which might obviously cause critical difficulties during emergencies. Nevertheless, when the Australians returned to France four times on 10th June they saw no sign of German resurgence in the air, and although Flight Lieutenant Smith[8] was shot down next day at the mouth of the Caen canal, during one of two patrols over the British sector, the role of low beach-head cover remained successful but without incident. Almost identical experiences were the lot of the other Australian pilots engaged on this duty; some had occasional minor brushes with enemy aircraft but made no claims; one, Flight Lieutenant McAuliffe[9] of No. 222 Squadron R.A.F., flew no fewer than four patrols on 10th June when the re-arming and refuelling strip at St Croix-sur-Mer—within the bridgehead—was put into use for the first time.[1]

It was the night fighters which were accorded the greatest opportunity for personal success, because the enemy bombers had been driven out of the sky in daylight. No. 456 Squadron, which, since moving to Ford at the end of February 1944 had already done much to wipe out the memory of the previous years of virtual inactivity, now entered upon what its diarist calls a "mensis mirabilis"—a month of unambiguous success. Striking though its achievements were during the first week of invasion, it must be remembered that there were six Mosquito squadrons of Second T.A.F. also flying over the beach-heads and three other Mosquito squadrons of Air Defence of Great Britain sharing with the Australians in the general task of rebutting the enemy night effort. Individual success owed much to the general coordinated defence plan, and to the

[8] F-Lt H. L. Smith, 411539. 66 and 132 Sqns RAF, 453 Sqn. Loom turner; of Blakehurst, NSW; b. Sans Souci, NSW, 24 Feb 1917. Killed in action 11 Jun 1944.

[9] F-Lt L. McAuliffe, 412624. 453 Sqn, 222 Sqn RAF. Clerk; of Bexley, NSW; b. Sydney, 7 Nov 1920. Killed in action 17 Mar 1945.

[1] The total duration of these flights was 7½ hours; the first began at 10.35 a.m. and the last ended at 11.30 p.m. McAuliffe was airborne again at 5.35 a.m. the next day.

work of ground stations in England and fighter direction tenders in the assault area.

The German forces engaged were mainly Ju-88 bombers of *Fliegerkorps IX* and Ju-88 torpedo bombers and He-177 and Do-217 glider-bomb carriers of *Fliegerkorps X* and *Fliegerdivision 2*. Possibly 150 sorties were flown on 6th-7th June and again the next night, but then, with a temporary cessation of torpedo-bomber sorties, the German effort on the 8th-9th and 9th-10th slumped to 80 sorties a night, rising slightly on the two succeeding nights to an average of 100 sorties. All these enemy operations were conspicuous for their lack of success despite the lucrative targets offered by the mass of invasion shipping. The glider-bombs and radio-controlled bombs which had been used at Salerno and Anzio had lost much of the element of surprise, while the long-awaited He-177 heavy bomber proved itself cumbrous and a ready prey for fighters. Other fruits of German inventiveness—the oyster mine, the circling torpedo and the Mistel pick-a-back plane[2]—were later employed, but, although they gained some success in action, the weight of attack was never more than embarrassing.

Australian opportunities began early on the morning of 7th June when Flying Officer R. G. Pratt followed up a radar contact and closed in on an He-177 only to find that his gun mechanism had jammed. After correcting the fault he made contact with a second He-177 and claimed its destruction. Both of these targets were flying within a few hundred feet of sea level, circumstances which required considerable skill and caution on the part of Pratt and his observer. An hour later Flying Officer Stevens[3] destroyed two He-177's in quick succession north of the Cherbourg peninsula. Wing Commander K. MacD. Hampshire left Ford at the time of Stevens' second combat and within half an hour had intercepted and identified "an He-177 in magnificent full moonlight conditions against a background of white cloud". He approached to within 150 yards range firing his guns and saw the enemy drop in flames into the sea.

The following night was almost as memorable, for Squadron Leader B. Howard claimed the destruction of two more He-177's. Cleverly using a thin layer of stratus cloud as cover he stalked each radar contact in such a way as to be within firing distance before revealing his presence, so that they might not themselves escape into cloud. After repeated hits both enemy aircraft dived out of control into the sea, exploded with great violence, and continued to burn on the surface. Later the same night a third He-177 fell to Pilot Officer Hodgen[4] after an interchange of fire in bright moonlight.

Low cloud and rain made the next night hideous, but, because of the probability that bases in the south of France would be clear and the enemy

[2] The Mistel was an Me-109 mounted on top of an over-age Ju-88 heavily laden with explosives. The fighter pilot controlled the composite aircraft, releasing the Ju-88 at close range against a selected target.

[3] F-Lt F. S. Stevens, 400739; 456 Sqn. Leather worker; of Surrey Hills, Vic; b. Brunswick, Vic, 7 Feb 1918.

[4] F-Lt R. D. Hodgen, 413594; 456 Sqn. Clerk; of Sylvania, NSW; b. Rockdale, NSW, 28 Apr 1923.

would operate, the night fighters were sent out on patrol but made no contacts. On the 9th-10th, however, came another double success, this time claimed by Flight Lieutenant R. B. Cowper, a pilot who had already gained much experience in flying over the sea during a tour in the Mediterranean. His clear combat report brings out forcibly some of the dramatic character of the cat-and-mouse night fighting:

We patrolled under Black Gang G.C.I. on an east-west line north of Cherbourg Peninsula. During the early stages of the patrol contacts on two bogeys [unidentified aircraft] were investigated and identified as Mosquitos. At approximately 3.45 a.m. Controller advised us that there was a possibility of trade [enemy aircraft] travelling south-east. . . . We were on a vector 280 at 4,500 feet and were directed to 190 then 130. At 4 a.m. . . . a contact was obtained on an aircraft moving approximately south-east, height 4,000 feet. It was doing a gentle figure of eight turn, starting to port. Speed was increased and a visual obtained at 2,000 feet [distance] when the enemy opened fire from the rear turret. Immediately afterwards pilot recognised enemy aircraft as an He-177 from the huge wing-span and the very square high tail-fin. Enemy aircraft carried two large glider-bombs outboard of the engine nacelles. No engine exhausts were visible, and glider-bombs gave the effect at first of a four-engined aircraft. When pilot recognised the enemy as an He-177, he fired a one-second burst at 700 feet, obtaining strikes on the port wing. Enemy aircraft turned steeply to starboard and lost height; another two-second burst obtained strikes on the starboard wing. Enemy aircraft was by now close to Cherbourg harbour and heading for it, still losing height and was greeted by heavy flak. He turned 80 degrees starboard parallel to the coast, and another two-second burst set his starboard wing ablaze. The wing burned heartily with huge flames and we flew parallel to the enemy aircraft and slightly above to observe the finish. However, the enemy aircraft released a flaming object and it was seen that the starboard glider-bomb had been ignited and was now flying solo, parallel to and between the enemy aircraft and us. We immediately turned in to attack again, and saw that the starboard wing of the enemy aircraft was still burning outboard of the engine nacelle. At this juncture he dived almost vertically towards the French coast west of Cherbourg, and following down we fired a short burst into his rear. No additional effects were observed. At 300 feet [altitude] we pulled out of the dive and the enemy aircraft was still beneath us and just crossing the coast line. Visual was lost owing to the pilot having to give his whole attention to instruments in view of the dangerously low height.

Pilot made a climbing turn to starboard and another contact was immediately obtained at approximately 4.5 a.m. head on, slightly to starboard at 4,000 feet [altitude] and 5 miles range. We continued to climb, and turning to port came in behind, and about 10 degrees below. Obtained visual on a Do-217 at 2,000 feet [distance]. . . . He was carrying one glider-bomb outboard of port nacelle but there was nothing visible under the starboard wing . . . the enemy aircraft took no evasive action . . . his speed was estimated at 240 knots. One short burst was fired from 450 feet [distance] which set the port engine and inboard mainplane ablaze. We took up position above and to port of the enemy aircraft and watched the fire develop. Enemy aircraft went into a steep diving turn to port, burning pieces falling off meanwhile. Eventually it hit the beach, a ball of fire, and a brief interval later exploded, lighting up the whole area.

Opportunities again presented themselves to the night fighters on 10th-11th June. Pilot Officer Sanderson closed on an He-177, but before he could attack the enemy gunners opened fire and hit the starboard wing of the Mosquito which veered away with the pilot struggling to bring it back under control. Sanderson found that his aircraft had a violent ten-

dency to swing to starboard and great effort was required to hold up the starboard wing. Prudence counselled withdrawal but he was loath to abandon the chase, and, as soon as he accustomed himself to the peculiar flying attitude of his machine, he again closed on the enemy and after two long bursts of fire he saw it fall in flames into the sea. Only then did he return to base where he had to make a fast unorthodox landing approach because, with the main spar bare for six feet outboard of the starboard engine, his aircraft stalled at 180 knots. It was later found that enemy shell fragments had also pierced the petrol tank making a 2-inch hole which fortunately had become re-sealed. Another crew of No. 456 witnessed the concluding stage of this combat and themselves attacked another He-177 which was claimed as probably destroyed.

There was one blank night, but the week of phenomenal success ended with yet another enemy claimed destroyed on the 12th-13th by Wing Commander Hampshire—this time a Ju-88. Acting admittedly as only a fraction of the general night protective cover over the shipping lanes, the Australians had demonstrated that the relatively weak enemy effort could be effectively blunted before bombers reached the target area, so that while the Germans weakened themselves considerably they scored very few hits on shipping at sea or in the assault area. By the end of the first week of OVERLORD the enemy anti-shipping units, on which so much reliance had been placed, had become merely an empty threat.

Day fighters employed on close-support and other offensive tasks also found their patrols full of incident, although their success was by no means as complete or clear cut as that of the night fighters. After 6th June the six Mustang squadrons of the planned pool of readiness were released to assist the 18 Typhoon squadrons over the British sector. The general aim was still to disrupt the enemy tactical control system by attacks on headquarters, radio units and telephone exchanges, and to delay the arrival of German armour moving into the Caen area. Thus Australians with No. 129 (Mustang) Squadron R.A.F. took part in an armed sweep over Argentan at 6 a.m. on 7th June. Each Mustang dropped two 500-lb bombs and claimed a searchlight battery destroyed and a train damaged; in addition there was an indecisive skirmish with six FW-190's. Of the Typhoon squadrons Nos. 175 and 181 each made several attacks on enemy road columns during 7th June and claimed that tanks and other vehicles were destroyed by rocket projectiles.[5] Two other squadrons (Nos. 182 and 247) were directed during the afternoon against German strongpoints holding out in the neighbourhood of Port en Bessin, thus preventing the link-up of the British sector and the American Omaha beach-head. The port area was captured that afternoon and firm contact made with the Americans next day.

[5] Ground surveys made at a later date indicate that the 60-lb HE rocket was not the lethal weapon against enemy armour that it was believed to be, an assumption which permitted inflated claims from these patrols. Enemy sources admit that it had at times a shattering effect on morale so that vehicles were temporarily abandoned, but the number actually destroyed was relatively small in relation to the effort expended.

The close-support program was virtually unchanged on 8th June but deteriorating weather cut it short after most units had flown only two patrols, although No. 182 Squadron R.A.F., for example, did execute three attacks on elements of the *21st Panzer Division* south-east of Caen. The whole effort of the A.E.A.F. for 9th June amounted only to 662 sorties[6] with negligible opportunities for close support, but the fighter-bombers were out in strength the next day, being joined this time by Spitfire squadrons withdrawn from defensive duties. Mustang squadrons made several bombing attacks along the roads leading from Domfront and Argentan to Caen and had a few brief skirmishes with enemy fighters which the Germans were using for standing patrols over the important highways—a sure sign that the general pressure of the Allied close-support air effort was having serious effect. The highlights of Typhoon operations on the same day were an afternoon attack on a battery of guns at Tanquerolle, north-east of Evrecy, and a late-evening attack against a *château* at La Caine, south of Caen, thought to be the headquarters of *Panzer Group West*. Bombs and rockets almost completely eliminated this headquarters and its staff at the very moment when a major German counter-attack, with all available armoured units, was being prepared.

Few positive claims were advanced on 11th June because cloud and rain shrouded the assault area, but pontoon ferries in the Seine estuary and a coast radar station near Le Havre were among targets successfully attacked next day. Despite a high level of flying over roads in the enemy rear surprisingly little traffic could be found, for even at this early date the Germans had been forced to adopt outriders for their columns to spot the approach of Allied aircraft so that vehicles could take cover. This extremely cautious procedure made all movements painfully slow and robbed the enemy of confidence in planning as well as in action. This was in marked contrast to the tactical freedom which air power bestowed on Allied ground commanders, whose vehicles streamed openly along the roads behind the fighting line.[7]

Medium and light bombers were always available to supplement the striking power of the fighter-bombers as in the La Caine raid of 10th June when 71 Mitchells bombed the *château* and other buildings in the village. For the most part, however, the bombers worked farther afield against bridges and general lines of communication or attacked supply dumps. As with the fighter-bomber units, Australians took a small but steady part in the successes and failures of the many repetitive attacks.

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[6] Sorties dispatched (all types) by AEAF during this period were: 6 Jun—6,643; 7 Jun—7,465; 8 Jun—5,073; 9 Jun—662; 10 Jun—5,528; 11 Jun—3,078; 12 Jun—5,157.

[7] The extent to which air power affected enemy movements is perhaps best reflected in the following extract from a message sent by Field Marshal Wilhelm Keitel on 14th June to the control staffs of the three Services giving general orders in the event of further Allied landings:
"Considerable forces must be dispatched to that area on a broad front and where the countryside is suitable they must proceed in formations of small battle-groups, keeping away from the main roads and using divers by-ways. The main thoroughfares are watched day and night by the enemy air force and so traffic in a column could not get through. They can now only be used by single vehicles. Allowance must be made for delays in movements to the front, but this is better than having a unit destroyed or attacked by the enemy air force. If a column, a stationary unit, or a village is attacked by low-flying aircraft, every soldier must open fire with his infantry weapon."

Chief interest naturally lay with No. 464 Squadron which continued to operate in a night role. A maximum effort was made on 6th-7th June when seven pilots made two trips so that No. 464 flew 27 of the 130 Mosquito sorties sent to impede German troop movements along roads converging on Caen. In general, crews were unable to assess the results of their attacks and accordingly Mitchell aircraft were soon employed as flare-droppers over the areas in which the Mosquitos patrolled nightly, particular emphasis being placed on interdiction along a line running roughly from Argentan to Avranches. Between 7th-8th and 12th-13th June No. 464 provided a further 75 sorties to this general harassing and claimed minor successes against road convoys, bridges and dispersal areas or dumps in wooded areas.

One special daylight operation was also mounted at the request of the army on 10th-11th June to attack petroleum tankers which had been reported in the marshalling yard at Chatellerault. Wing Commander Iredale led the section of three Mosquitos which made the first attack shortly before 10 p.m. and he strafed six petrol wagons and then bombed trucks and the permanent way; Flying Officer Rowell strafed stationary box-cars and saw one burst into flames before bombing another large group of trucks. Three aircraft of No. 487 R.N.Z.A.F. also attacked at this time, and three-quarters of an hour later six Mosquitos of No. 107 R.A.F. followed in a second wave to bomb and strafe in a dive from 3,000 feet. Fairly large fires were reported still burning in the marshalling yards by aircraft on armed reconnaissance patrols during the night.

During the vitally important first week of the assault, Allied air power had dominated the entire battlefield. It had practically confined the German Air Force to a frantic defence of its own bases and ineffectual patrols over lines of communication, with scant opportunity either to defend or directly assist troops in the front line. It had entirely prohibited in daylight, and almost denied at night, any attack on the vulnerable Allied seaborne supply routes. Offensive action, though individual results often defied precise assessment, had been on such a heavy and continuous scale as to interfere seriously with the enemy plan to throw the invaders back into the sea during an early stage of the assault. Even on this colossal scale, air action alone could not bring an immediate decision on the battlefield against tough and resolute German troops who had been nailed to their posts by Hitler's refusal to countenance withdrawal. It could, however, as in Italy during STRANGLE, create the weakness and confusion behind the line which, once the crust of enemy resistance had been broken, would entail retreat over a wide area.

Air was playing its part with equal success in the naval struggle at both ends of the English Channel. Just as anti-shipping aircraft and naval air weapons had been the prime hope of the *Luftwaffe*, so Grand Admiral Doenitz had faith in the ability of his U-boats and light surface craft to strike sufficiently hard at the Allied invasion fleets to create favourable opportunity for the *Seventh Army* to counter-attack with numerical

superiority. This was the obverse of the Allied air campaign against German supply potential and communication. Doenitz was aware of the time factor, and U-boats in Biscay ports were ordered to the assault area at their best speed immediately the extent of the Allied invasion became apparent, although some submarines had to be retained in Gironde ports to meet the possibility of a second landing. Thus, during the week of tension on the beaches, there was also a desperate struggle by U-boats attempting to force their way into the English Channel across the heavy patrol lines maintained by naval and Coastal Command forces. The U-boats took the risk of travelling as much as possible on the surface, fighting back with all their anti-aircraft armament when discovered.

The air plan to defeat this anticipated enemy move was, as its code-name Cork implied, designed to seal off the entire area between Ushant and Lands End. Patrols were flown as endless chains of aircraft around a series of contiguous boxes throughout the whole 24 hours, so that theoretically the chances of a surfaced U-boat going undetected were remote. Any aircraft making contact would rapidly attack, report and continue its patrol to avoid any break in the original chain. Other aircraft airborne, or Rover free-lance patrols covering each box, could investigate each sighting report and transmit homing signals to guide naval forces to the spot; they were also readily available to fill any break in the chain caused by engine or radar failure. The main box patrols were flown chiefly by Liberators and Wellingtons, many of them equipped with Leigh lights, while the Sunderland squadrons flew farther west on the ocean flank.

It will be seen that, in the first phase of the battle, when U-boats were attempting to rush in as quickly as possible, more opportunities existed for aircraft whose radar was specially designed to find surfaced targets over a wide area than for the naval patrols which were primarily meant to deal with underwater targets. In the five days and nights during which the Germans persisted with their tactics of direct approach, aircraft made 36 sightings in the area off the Brest peninsula and in the mouth of the English Channel; 23 depth-charge attacks were made and six U-boats were sunk and three more damaged. These were the total enemy losses during the period but they were heavy enough in conjunction with the implied strength of Allied patrols to enforce a change of policy on the enemy. General Eisenhower was able to write, "during the first critical 10 days of the invasion there was no evidence of the penetration by a single craft".[8] The first round had undoubtedly gone to the air defences.

In the air-sea battle developing on its doorstep, No. 10 Squadron played a relatively minor part. Only one patrol was flown on the 7th although next day four Sunderlands were provided for one of the more westerly boxes and a fifth for Rover duties. This aircraft twice made searches of areas where U-boats had been reported but could make no second contact. Five uneventful patrols followed on the 9th but three of four searches in a new area on the 10th at last brought positive though

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[8] *Report by SCAEF to COS*, p. 58.

rather disappointing brushes with enemy forces. Flight Lieutenant Collett[9] sighted a 500-ton U-boat at 7.50 a.m. due west of Pointe du Raz, but his bomb-doors jammed and, when the fault had been overcome, the U-boat submerged before he could make an effective approach. Flight Lieutenant McGregor[1] sighted a U-boat surfacing at 9.14 a.m. due west of Isle de Yeu and dived to attack but three depth-charges failed to release and the others overshot. Later at 1.20 p.m. Flight Lieutenant Allan[2] homed on a contact and despite vigorous anti-aircraft fire identified the target as a group of five E-boats which he duly reported and then resumed patrol. After this brief flush of excitement No. 10 sent out nine Sunderlands during the following two days without any tangible result.

No. 461 Squadron was more favourably placed in that its night role promised more opportunities. But patrols on the 6th-7th and 7th-8th were likewise uneventful although the "salmon had begun to run" on the latter night as was proved by the destruction within half an hour of *U629* and *U375* by a Canadian pilot of No. 224 (Liberator) Squadron. On 9th-10th June No. 461 sent out only two Sunderlands but both Flying Officers Sheehan[3] and Livermore[4] made attacks shortly after midnight against U-boats which in each case fought back during the aircraft's approach and then prudently submerged. Neither of these attacks was lethal, although both were technically well executed by the light of the new 1.7-inch flares which compensated for the lack of a Leigh light. Thereafter for several nights the Australians continued to patrol in an area south of Ushant without any further opportunity for attack.

Individual Australians took part in two of the six attacks which resulted in positive success. Three were in the crew of Liberator F/120 which sank *U740* at 8.40 a.m. on 9th June, and one was in K/206 which finally destroyed *U821* at 12.25 p.m. on the 10th, after it had already been partly disabled by four Mosquitos of No. 248 Squadron. Even more were associated with attacks which, though they failed in their main purpose, still had much effect on the general pattern of pressure. Thus a Liberator crew of No. 53 Squadron, which contained Flying Officer Peters[5] (navigator) and three Australian gunners, made two separate attacks against U-boats early on the morning of 7th June although their aircraft sustained considerable damage from anti-aircraft fire. On a similar patrol on 13th June this crew reported by wireless that they had sighted a U-boat and were going in to attack. No further messages were received and the aircraft failed to return. Australian second pilots

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[9] F-Lt R. H. Collett, 401105; 10 Sqn. Bank clerk; of Bendigo, Vic; b. Bendigo, 10 Jul 1920.

[1] Sqn Ldr H. A. L. McGregor, 411030. 2 and 10 Sqns. Bank clerk; of Dundas, NSW; b. Isle of Wight, England, 8 Apr 1918.

[2] F-Lt A. W. Allan, 409487; 10 Sqn. Winemaker; of Rutherglen, Vic; b. Murray Bridge, SA, 22 Nov 1913.

[3] F-Lt N. O. G. Sheehan, DFC, 428853. 461 and 37 Sqns. Law student; of Launceston, Tas; b. Rose Bay, NSW, 12 Oct 1923.

[4] F-Lt J. B. R. Livermore, DFC, 409418; 461 Sqn. Clerk; of Vermont, Vic; b. Forest Hill, Vic, 6 Jun 1922.

[5] F-O A. O. Peters, 408874. 455 Sqn, 53 Sqn RAF. Schoolteacher; of Tooradin, Vic; b. St Arnaud, Vic, 8 Aug 1908. Killed in action 13 Jun 1944.

of Nos. 58 and 224 Squadrons also joined in unsuccessful attacks against two U-boats on 10th June, again in the face of fierce enemy fire. Some aircraft were lost during this short campaign but they won a signal victory remarkable both for efficient planning and meticulous execution.

The anti U-boat patrols in No. 19 Group's area also served as a detection screen for the movement of enemy surface vessels, while two squadrons of Beaufighters and one flight each of Wellingtons and Albacores stood ready for direct attack. There was only one major action during the first week and no Australian aircrew was involved. This came after aircraft on Cork patrols reported a force of enemy destroyers steaming north from the Gironde during the afternoon of 6th June. A Beaufighter strike force from Nos. 144 and 404 Squadrons attacked three destroyers south of Brest at 8.30 p.m., setting one on fire, and the group was again attacked soon after midnight when a second formation of one destroyer and four escort vessels was also reported. All these ships put into Brest, but when they attempted to round the Brest peninsula two days later they were again reported by Coastal Command and brought to action by Allied naval vessels. The German destroyer *ZH 1* (ex *Gerard Callenburgh*)[6] was sunk; a *Seetier* class destroyer was driven ashore and the rest turned back to Brest. German light naval forces in the west took no further significant part in subsequent campaigns.

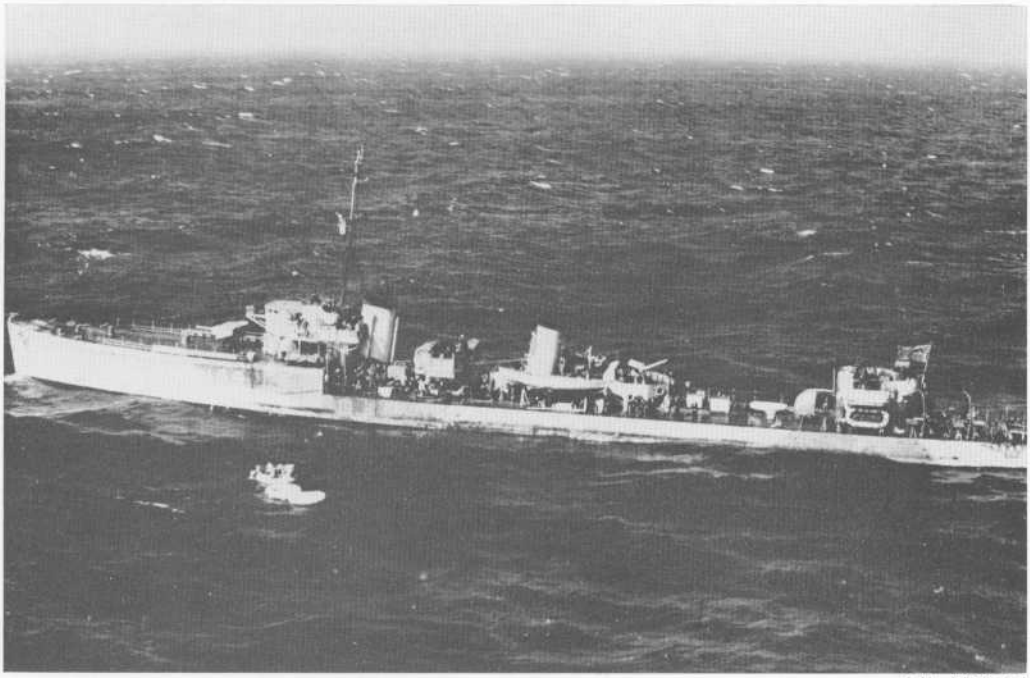
On the eastern flank of the assault area U-boat action was not expected but the Germans had some 30 E-boats or similar light craft based on French Channel ports and were expected to bring additional ones to that area from Germany. For its part No. 16 Group sent out Albacores and Wellingtons on frequent reconnaissance patrols especially at first light and dusk. The main force of Beaufighters assembled to combat the E-boats was not called on for any large-scale action during the first few days and was also used for small reconnaissance patrols. Thus at dawn on 7th June Warrant Officer Jones[7] of No. 455 Squadron sighted and attacked an E-boat near Cherbourg, but his bombs fell wide, and many similar inconclusive incidents followed. In terms of enemy vessels destroyed the most successful day was 13th June. Early on that morning four squadrons of Beaufighters were operating off the Channel coast and no fewer than 28 attacks involving 40 aircraft were reported against vessels varying in size from trawlers to E-boats. No. 455 Squadron sent out 12 Beaufighters led by Wing Commander Davenport at 3.45 a.m. for a sweep along the French, Belgian and Dutch coasts. Near Schouwen an armed trawler and two smaller vessels were seen and attacked by two of the Beaufighters.

One aircraft then had to retire to base because of flak damage sustained in this action, but Davenport re-formed the rest of his squadron and continued searching until seven armed trawlers were found near the Hook of Holland. The Beaufighters turned seaward to make rendezvous with

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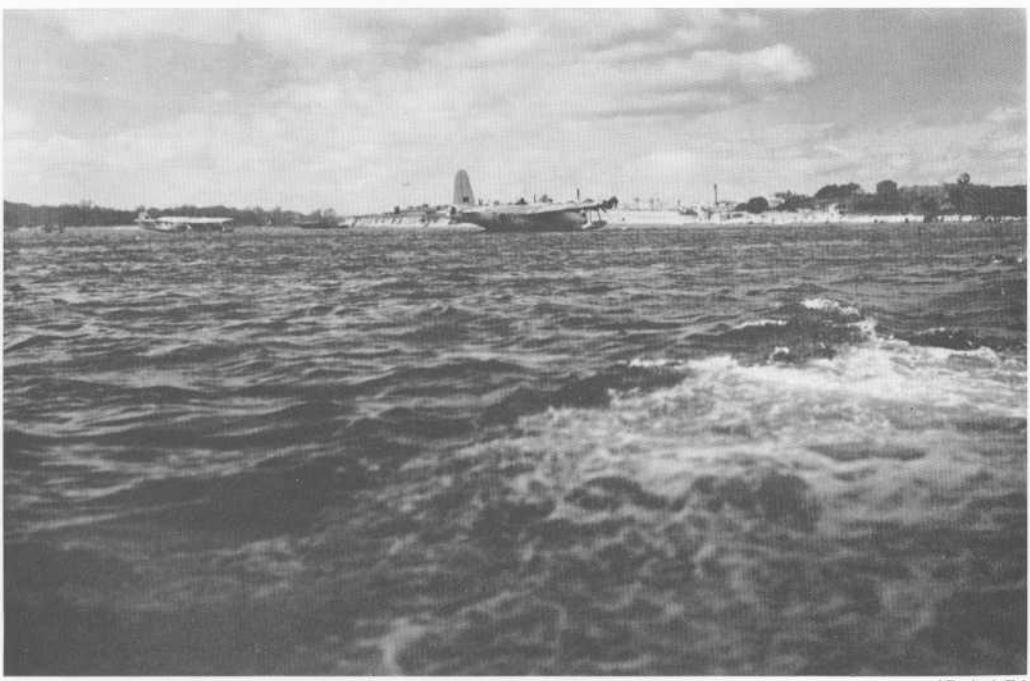
[6] *ZH 1* was the former Dutch destroyer *Gerard Callenburgh* (1,628 tons), which had been scuttled in 1940 before completion, and raised later by the Germans.

[7] W-O W. T. Jones, 413618; 455 Sqn. Manufacturer's chemist; of Coogee, NSW; b. Camperdown, NSW, 16 Feb 1916. Killed in action 10 Aug 1944.



(*Air Ministry*)

H.M.S. *Saladin* rescuing survivors of a Sunderland of No. 461 Squadron on 25th March 1944, 48 hours after the flying-boat, piloted by F-O F. Bunce, had been attacked by nine Ju-88's. The Sunderland destroyed one Ju-88 before being itself forced into the sea.



(*R.A.A.F.*)

A view of Mount Batten from the sea, March 1944, where No. 10 (Sunderland) Squadron was based. At her moorings is K/461 of the other Australian flying-boat squadron stationed at Pembroke Dock and a Catalina in transit overseas.



(*R.A.A.F.*)

Bomb aimers of No. 463 Squadron at Waddington at a briefing by F-Lt G. Murtough, before a raid over enemy territory in April 1944.



(*R.A.A.F.*)

Aircrew of No. 466 (Halifax) Squadron in transit to their aircraft for an operational sortie.

No. 254 Squadron of the North Coates Wing which was also in the area, and then both squadrons returned to attack the vessels with cannon fire, leaving three of them on fire and seriously damaged for the loss of one Beaufighter. Generally, however, the results of air action against enemy shipping on the eastern flank had been disappointing; the E-boat was as potentially dangerous as ever.

Despite the hydra of air power which constantly threatened the Germans, energetic thrusts and fanatical defence gave them time to recover from the effects of initial surprise and disorganisation of their communications, so that Allied progress on the ground was not easy. In the eastern sector the main move was towards Caen. At one time on 7th June British forces were only two or three miles north of the city, but strong counter-attacks by two panzer divisions split General Dempsey's[8] Second Army and indeed almost reached the sea. Farther west the British secured Bayeux, pushing their positions some way to the south of that town to link with American forces which had reached the Bayeux-Carentan road, after very heavy initial fighting on Omaha. On the Cherbourg peninsula the Germans strove their utmost to prevent any link-up between V American Corps on Omaha and VII American Corps on Utah beach-head which were separated by the difficult marshland of the Vire estuary. Here, indeed, General Eisenhower felt it wise to make a change in the tactical plan, and he ordered VII Corps to attack southwards instead of moving directly against Cherbourg as originally intended. In the event, patrols of the two American corps met on 10th June and two days later the key centre of Carentan was captured.

The Allied bridgehead now stretched unbroken from Quineville on the east coast of the Cotentin peninsula to the east bank of the Orne. Only one enemy pocket of resistance remained unsubdued in the underground fortifications at Douvres. Allied supply arrangements were working fairly well although badly hampered by the heavy seas which prevented full use of the special landing devices such as "Rhino" ferries which had been especially evolved to facilitate unloading at this stage. Initial discharges of stores were only half (only one quarter at Omaha) of what had been planned, but losses and consumption ashore were lower than anticipated. The artificial-harbour units were arriving and the inner anchorages were already in position. By 12th June approximately 325,000 men, 54,000 vehicles and 104,000 tons of stores had been brought ashore over the beaches. Thus, although there were some shortages and miscalculations, especially in the undue proportion of armour to infantry in some sectors where tanks had little freedom of movement, the supply position as a whole gave little cause for concern. The strength of the lodgement area was also greatly increased by the ability of naval forces to operate openly and give artillery support whenever required.

[8] Lt-Gen Sir Miles Dempsey, GBE, KCB, DSO, MC. (1914-18: Lt R Berks Regt.) GOC XII Corps 1942-44, Second Army 1944-45, Fourteenth Army 1945; C-in-C Allied Land Forces, SE Asia, 1945-46. Regular soldier; b. 15 Dec 1896.

CHAPTER 7

THE BUILD-UP PERIOD

THE firm foothold gained by the Allies in Normandy by 12th June 1944 was a satisfactory development but it still fell short of the original COSSAC estimate that Caen would quickly be secured and that Cherbourg would fall by the ninth day of the invasion. In fact enemy dispositions and Allied resources available for the prime assault made these estimates incompatible, for the best chance of securing Caen immediately had probably been (as originally intended) by the use of maximum airborne forces on the left flank. Had two airborne divisions not been diverted to the Cotentin peninsula it is extremely doubtful whether the bridgeheads there could have been secured and enlarged in time for the drive on Cherbourg when it actually developed in the latter half of the month; in any case German reinforcement of Cherbourg during May and the presence of potential reinforcements in Britanny made the original schedule unreal. Thus, with neither of its immediate major individual objectives gained by the end of the assault period, the Allies passed to the task of enlarging the lodgement area to allow adequate room for the build-up of the forces required to effect a decisive break-out and to overrun France. During this period air power in general would be required to continue the tasks already laid on it during the assault period, with relatively minor changes of emphasis.

General Montgomery was still eager to secure Caen but, faced with exceptionally strong resistance there, he determined to modify the generally accepted view that the COSSAC plan called for direct assault by proposing to tie down maximum German forces, especially armoured units, in the Caen-Caumont sector, thus permitting American forces to drive first north to Cherbourg and then southwards from the base of the Cotentin against meagre and ill-balanced enemy defenders. Thus for several weeks the emphasis in the British area lay on regrouping and the linking of administrative follow-up echelons with parent formations, while initiative was retained by continued offensive probes in order to stretch German forces to the fullest extent and deny any chance of heavy counter-attack. The stubborn fighting which developed throughout June around Caen thus suited Montgomery's plan although it caused much criticism from proponents of direct assault and gave particular concern to British air commanders, who became increasingly worried about the lag in build-up and deployment of tactical air forces in the bridgehead.

It was not only that Air Chief Marshal Leigh-Mallory and Air Marshal Coningham were convinced that the seizure and exploiting of airfield sites to the south-east of Caen had been one of the primary objectives, but also they now found that the lodgement area was so shallow and overcrowded that some of the emergency forward fields could not be sited as forecast, and some which were installed were within range

of enemy artillery. What Montgomery called a change in emphasis, they considered a change in plan and one which condemned them to maintain a high level of activity while still using the bases in southern England with consequent administrative difficulties in addition to tactical disadvantages.

Affairs in the American sector appeared to develop more favourably, although in one sense the Cotentin was won on the outskirts of Caen, as Montgomery intended. The Germans were still fearful of a second invasion in the Pas de Calais timed to coincide with a probable break-out attempt from Caen into the Falaise plain, and therefore they reacted with practically all their forces against thrusts on the left flank of the Allied lodgement. The estimated division of the enemy's available forces as they struggled into the battle area across the air-interdiction zone was:

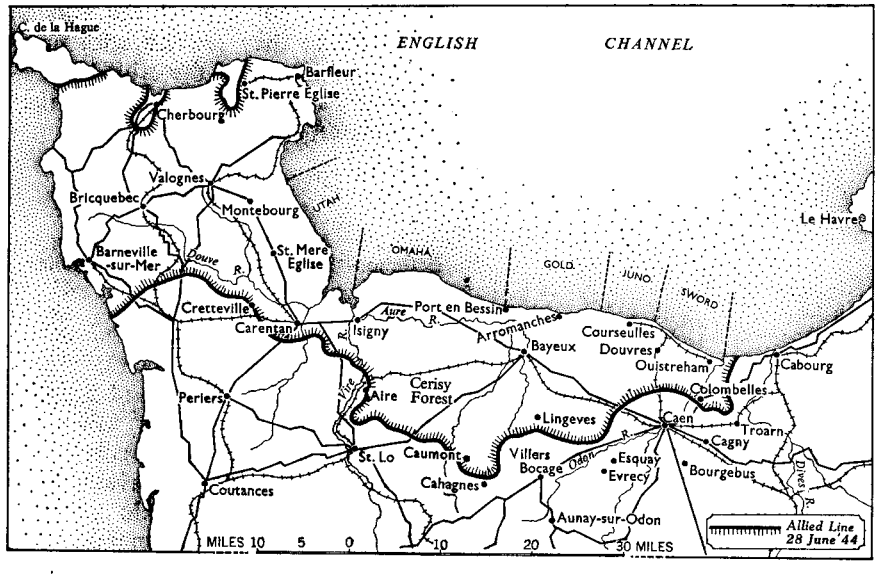
	Caumont-Cotentin			Caumont-Caen		
	Armoured Divisions	Tanks	Infantry Battalions	Armoured Divisions	Tanks	Infantry Battalions
15th June	—	70	63	4	520	43
25th June	1	190	87	5	530	49
30th June	½	140	63	7½	725	64

Meanwhile, the Allies gave a favourable allocation of troops and supplies to the Cotentin so that numerical and material superiority was soon achieved. The enemy position was made more difficult by an edict from Hitler that troops should stand firm, an order which deprived local commanders of tactical freedom and split their forces in vain attempts to prevent the sealing off of the Cotentin and the maintenance of a defence line well forward from Cherbourg. As it was, the surprisingly stubborn defence at Montebourg left the enemy weak in the centre so that American troops were able to cut the peninsula on 18th June. The Germans then had insufficient time or reserves to hold Cherbourg and had used up most of their supplies; had they (as later at Brest and St Malo) withdrawn all resources into the port early they might have better fulfilled the professed aim of denying for as long as possible the use of a major port. As it was they were ordered to hold the entire tip of the peninsula from Cap de la Hague to Barfleur and were badly placed to withstand the final American assault which began on 22nd June heavily supported by naval gunfire and air attacks. The garrison of Cherbourg surrendered on 26th June and by the end of the month pockets of resistance on either flank were overcome. The Americans were then free to turn south in readiness for the coordinated plan for an Allied break-out.

During the last week in June the Second British Army launched an offensive to gain a bridgehead across the River Odon, west of Caen. A small area was taken and held against very bitter opposition but the intended exploitation towards the River Orne was not possible. Even more noticeably than in previous battles, the Germans diverted all available units to Caen and were profoundly convinced that this was the area

of critical danger. Thus Montgomery, although failing to take Caen or achieve large territorial gains, had created the situation which he himself considered essential for Allied success, with the enemy more and more committed to a policy of hanging on grimly at Caen while all the time the main Allied thrust was being deliberately prepared farther west.

Everything still depended on the comparative build-up of the opposing forces. By the end of June all the German units which had been sent



to Normandy to defeat the assault had at last struggled through the air interdiction lines, but had arrived depleted, and most had been thrust piecemeal into battle. Heavy Russian offensives timed to coincide with OVERLORD and the considerable Allied progress in Italy made it unlikely that any large new reinforcements could be withdrawn from those fronts. Only the *Fifteenth Army* was available as a source of new German units, and that army was still tied to the Pas de Calais by the apparent threat of a second invasion. Thus, with practically all available enemy forces already absorbed into a defensive ring intended to restrict rather than eliminate the lodgement area, the Allies no longer feared a decisive counter-attack, and applied themselves to the task of achieving vast numerical and material superiority.

The air contribution aimed at ensuring an uninterrupted Allied build-up was well executed throughout the latter part of June 1944, although many of the thrilling incidents of the assault period were lacking. This was especially noticeable in the campaign against U-boats. Their first attempt to burst boldly into the English Channel had been decisively beaten and on 12th June Grand Admiral Doenitz ordered them back to Biscay ports

so that they could be fitted with the *Schnorkel* breathing device which would allow them to proceed virtually submerged for very long periods.[1] This reduced drastically the opportunities of hunting aircraft, but the patrols were necessary to keep the enemy tied to this expedient. The early *Schnorkel* apparatus showed some technical faults, and until German crews became accustomed to its use, their progress was very slow. U-boats were still faced with naval patrols which could now use Asdic detecting gear, so that although some "Schnorkellers" began to penetrate the western end of the Channel, they found it difficult to burst through the Cork naval and air patrols which were pushed farther eastward as required. On 18th June *U767* was sunk by naval forces and *U441* by a Wellington of No. 304 (Polish) Squadron. After another lull the next batch of U-boats was also intercepted, and on 24th June *U971* was sunk by a Czech Liberator and next day both *U269* and *U1191* were destroyed by naval vessels. On 29th June *U988* was sunk by joint naval and air attack.

Thus, as in the assault phase, the enemy lost six submarines and crews while others were damaged and had to return to their bases. Not one reached the mid-Channel shipping lanes until three weeks after the invasion had begun and even there the enemy found it very difficult to achieve any noticeable success despite the abundance of targets. Two merchant ships were torpedoed late in June but these were isolated successes, and the U-boat responsible was immediately harried by naval ships. Although relatively high, the Allied expenditure of effort to combat the U-boats was entirely justified by the fact that they had an infinitesimal effect on the cross-Channel flow of supplies.

In these circumstances the Australian squadrons in No. 19 Group were exceptionally active but had few positive incidents to report. No. 10 Squadron during June set up a new record for a Sunderland squadron, flying 92 sorties involving 1,146 hours on patrol. Only twice were sorties curtailed because of technical faults, and the very high level of operations reflected great credit on the ground staff engaged in maintenance duties. Much of this fine servicing teamwork was due to the example of Flight Sergeant Ferguson,[2] one of the original airmen sent to England in December 1939, who had repeatedly waived chances to return to Australia so that he might remain on duty with No. 10. His practical sense, ability to inspire his men, and single-minded determination to prevent any delays by working very long hours, or in bad conditions if necessary, had all led to a consistently high standard of serviceability. It was a distinct loss therefore when, at the very moment that his success was most evident, Ferguson was killed by a flying bomb on 30th June while

[1] A telescopic air intake and exhaust apparatus hinged to the conning tower, which when erected, enabled the U-boats to remain submerged at periscope depth while running their diesel engines when charging their batteries and replenishing air supplies.
Before the fitting of this device, the period of up to five hours on the surface required for this operation was when they were very vulnerable to detection and to subsequent attack by aircraft fitted with ASV. The *Schnorkel* though a great advantage to the U-boat was not entirely successful, as the small echo returned by the apparatus itself could be detected by a skilled radar operator, and, also, it had operating defects which caused adverse physical and psychological reactions on crews.

[2] F-Sgt O. E. Ferguson, BEM, 3913; 10 Sqn. Regular airman (fitter); of Auburn, NSW; b. Goulburn, NSW, 9 Mar 1911. Killed in action 30 Jun 1944.

in London on sick leave. The tradition he left, and the ever-willing contribution of all the ground staff gave No. 10 an enviable position in maintenance matters until the end of the war.

The aircrews were disappointed by the new conditions. That U-boats were still attempting to force their way through was apparent on 15th June when Squadron Leader T. Brown sighted four frigates midway between the Scilly Isles and Ushant investigating a submerged contact. Within a minute of this sighting one of the frigates was torpedoed and blew up. Brown reached the spot seven minutes later to find a mass of wreckage with some survivors struggling in the water. He dropped his aircraft dinghy and, characteristically, requested permission to land and pick up some of the men. This request was refused as surface ships were at the scene and he was instructed to remain hunting the U-boat, which, profiting from the confusion, had slipped away and was not contacted again in the six hours during which the Sunderland searched for it.

These patrols were physically and mentally exhausting because it was very difficult to identify a possible radar echo of a *Schnorkel* tube among the many small wave echoes. Visual search for perhaps 13 hours for such a relatively small target as a short length of 15-inch diameter tube, or the wake or diesel smoke which accompanied it, was extremely exhausting. The surface of the sea had a mesmeric effect and several times during the month porpoises, smoke floats, flotsam or other phenomena were identified by tired eyes as *Schnorkels* until closer examination dispelled the illusion. On other occasions crews of No. 10 were diverted to the position of contacts made by ships or other aircraft, but although on one occasion a possible periscope was seen and on another a depth-charge was hopefully cast ahead of a moving oil streak, there was no real chance for action. Bad weather also interfered on several days so that aircraft were frequently diverted to Pembroke Dock if conditions deteriorated at Plymouth. But the patrols, although made more hazardous by bad weather, were never cancelled; this ensured that the enemy could not slip through on the surface.

No. 461 Squadron also reached a peak in its activities and was able to offer 37 more sorties than the 78 which it was actually called upon to perform. After 12th June much of its flying was by day, but night patrols were also made in case U-boats attempted to surface for some respite from "Schnorkelling". The only sighting was by day on 19th June but significantly during the bad weather period when the enemy might have expected some relaxation of air patrols. Flight Lieutenant F. H. Bunce homed on a radar contact shortly before 3 p.m. and found a fully-surfaced 740-ton U-boat in position 90 miles west-south-west of the Scilly Isles. It was travelling eastward at very high speed and began firing with all its guns while the Sunderland was still four miles away, but it then quickly crash-dived 40 seconds before Bunce was in a position to attack, so that, although he dropped two depth-charges ahead of the swirl, he had little hope of other than a psychological effect. Sunderlands of Nos. 10 and 461 were homed to this position and a naval hunting

group arrived during the evening, but, although air search continued until midnight, the U-boat was not rediscovered. The night patrols of No. 461 were completely uneventful. Wing Commander Hampshire like Wing Commander Gillies of No. 10 had to reassure his young, enthusiastic but sometimes impatient crews that their part, although unspectacular, was very important to the whole campaign. At the same time much thought and practice were given to the new problem raised by *Schnorkel.* Binocular drill and the finer tuning of radar sets was assiduously practised by all aircrew in the hope that now, when chances of making a sighting were much slighter, none would be missed.

Coastal Command was fairly well satisfied with the development of the campaign, for the enemy had been forced into a defensive frame of mind and was manifestly not achieving success against shipping. During the period 11th-30th June 32 attacks were made by aircraft against U-boats in the Channel, Bay of Biscay and South-Western Approaches. Although many of these attacks (like Bunce's) had little chance of full success, nevertheless taken as a whole they were thought to be some deterrent to the enemy. Australians serving with other squadrons of No. 19 Group were involved in eight of these incidents which ranged from an attack on such a small aiming point as a periscope by Pilot Officer Porter[3] of No. 612 on 18th June, to attacks on fully-surfaced U-boats surprised during bad weather or at night; in a few cases minor damage to the U-boat was considered probable.[4]

It was in fact enemy light naval forces based on Cherbourg, Le Havre and Boulogne which caused the greatest anxiety during the period of Allied build-up. Their principal task was minelaying and they were able to issue from their heavily protected anchorages under cover of darkness, deliver their blows and scurry back to safety before dawn. Special pressure mines (oysters) and new adaptations of acoustic and magnetic mines had been deliberately held back by Doenitz for use during the expected invasion, and though many pressure mines were sown by aircraft the activities of the E and R-boats which could lay fields with great accuracy were of great importance to the campaign. As has been seen, aircraft patrols had relatively little success in preventing the nightly activity of the enemy light craft, although the combined action of naval and air forces did prevent them from penetrating into the heart of the cross-Channel shipping lanes. Prisoners of war stated that few E-boats put to sea without being spotted and attacked from the air, but it was very difficult for aircraft to bomb such small, fast-moving targets with accuracy, and the majority of such sinkings as did occur were gained by Allied motor torpedo boats working in conjunction with radar-equipped frigates. But although repeatedly turned back, the E-boats were considered such a potential menace that by the end of the first week of operations

[3] F-O J. R. Porter, 408516; 612 Sqn RAF. Clerk; of Beechworth, Vic; b. Castlemaine, Vic, 15 May 1915.

[4] All assessments of damage to U-boats were made after exhaustive and cautious analysis. They were mostly confirmed after the war when U-boat logs and other documents became available for scrutiny.

Admiral Ramsay, the Allied naval commander-in-chief, requested that Bomber Command should attack the enemy E-boat bases.

Le Havre was chosen as the first target because it was nearest to the assault area and there was reason to believe that a special enemy effort would be made to hamper Allied naval dispositions off Sword beach. The attack was finally planned to take place in two waves, one just before dusk at 10.30 p.m. when the E-boats were expected to be preparing for their night operations, and the second nearly three hours later to take advantage of existing damage to the harbour and docks. The decision to send out in daylight a large force of heavy bombers basically designed for use only at night was possible because of the great ascendancy already gained over the German Air Force, because the task entailed a minimum penetration of enemy defences, and because fighter escort was available throughout. No. 460 Squadron was detailed for the first wave and Wing Commander Douglas[5] led 20 of his crews who dropped 116 tons of bombs in the port area. The specialist No. 617 Squadron made an attack with 12,000-lb Tallboy bombs against the thick concrete E-boat shelters and, to achieve the utmost accuracy, Wing Commander Cheshire[6] and Squadron Leader Shannon themselves made the visual primary marking for this part of the raid. Flight Lieutenant C. K. Astbury, the bombing leader of No. 617, dropped the first Tallboy and reported a direct hit on the E-boat pens. In all phases of the night's operations a total of 1,816 tons of bombs was dropped on Le Havre, 25 per cent more than in the first 1,000-bomber raid against Cologne two years earlier and roughly equivalent to the load employed six months previously in the series of attacks against Berlin.

Great confidence was placed in the success of the raid which in its direct application caused the destruction of 10 E-boats, 3 torpedo boats and numerous minor vessels, and indirectly depressed the value of Le Havre as an enemy base flanking the Allied positions. It could not entirely prevent a continuance of some E-boat activity and is perhaps therefore an example of how, in times of air superiority, there was a tendency for the heavy-bomber force to be called on to settle all emergencies. The Allies were indeed fortunate that their resources permitted them to bring such overpowering weight against any target listed for attack.[7] As it was,

[5] W Cdr J. K. Douglas, DFC, AFC, 403564. 103 and 166 Sqns RAF; comd 460 Sqn 1944, 467 Sqn 1944-45. Salesman; of Manly, NSW; b. Tamworth, NSW, 17 Jun 1921. Killed in action 8 Feb 1945.

[6] Gp Capt G. L. Cheshire, VC, DSO, DFC, 72021 RAF. 102 and 35 Sqns RAF; comd 76 Sqn RAF 1942, RAF Stn Marston Moor 1943, 617 Sqn RAF 1943-44; HQ Eastern Air Command SEA 1944, British Joint Staff Mission Washington 1945, official British observer at dropping of atomic bomb Nagasaki 1945. Regular air force offr; b. 7 Sep 1917. He founded the Cheshire Foundation Homes for the Sick.

[7] A translation of a German document describing the effect of this raid tends to cast doubts on the efficacy of bombs, even the Tallboy, against properly designed shelters and fortifications, and may be compared with similar relative failures against U-boat shelters in the Biscay ports, or attacks on coastal gun batteries:

"One bomb hit the corner of a pen which was heavily damaged as a result; a second bomb broke through the roof of the R-boat pen.

"The diameter of the hole on the upper circle was 6 metres. The roof of the pen had a total thickness of 3 metres, the lower part consisting of concrete girders 1.25 metres thick with a covering of reinforced concrete 1.75 metres thick superimposed upon them. The reinforced concrete layer was thrust downwards, the concrete carrier beams were ripped apart and hung from the ruins of the roof. *The R boat inside the pen which lay under the point of penetration suffered only insignificant damage from falling pieces of concrete.* If the bomb had attained its maximum rate of fall the effect would undoubtedly have been greater." (Author's italics.)

only one-third of the Bomber Command was employed at Le Havre, and against weak defences only one bomber was lost.

The follow-up raid against Boulogne on the next night was again made by nearly 300 aircraft, but this time in darkness and through layer cloud which partly spoilt the Tallboy attack of No. 617 Squadron. The main force, including 22 Lancasters of No. 460, bombed on pathfinder methods, Australian crews first checking the position of target indicators in relation to the outer breakwaters of the port. Photographs taken next morning showed severe damage to docks and general facilities. Thirteen vessels in the harbour were wrecked or badly hit; oil storage tanks were burnt out and a floating dock half submerged; bomb craters were visible on almost every quay, and lock gates, railways and storage sheds had all been affected. Again the raid was economical in that only one aircraft was lost, but it is doubtful whether it had any direct effect on the situation in the assault area as the E-boats at Boulogne were at this time primarily engaged in laying defensive minefields to guard against the possibility of an Allied attempt to invade the Pas de Calais.

For the rest of the month responsibility for keeping E-boats in check reverted to No. 16 Group Coastal Command and naval forces. On eight occasions formations of from six to twelve Beaufighters of No. 455 scoured the Belgian and Dutch coasts seeking to intercept possible enemy naval reinforcements arriving from North Sea or Baltic ports, but they saw only a few small vessels, and in brief skirmishes inflicted and sustained only minor damage. On the night of 16th-17th June six aircraft were sent out to perform a creeping line-ahead search of an area near Ostend. Because of darkness and poor visibility at base the Beaufighters took off singly beginning at 10.50 p.m., and, although conditions in the search area improved, the pilots continued individual patrols and all had some contact with parts of an enemy force. The first sighting of a single E-boat was made by Flying Officer Watson[8] at 11.37 p.m. but he lost touch while manoeuvring to attack. Ten minutes later he found four more E-boats, all of which fired light guns as he came in to attack. As this fire diminished when he had swept overhead he claimed a possible hit on one of the enemy. At 11.57 p.m. Pilot Officer Payne[9] reported two E-boats firing guns and attacked, again apparently silencing one of them. Warrant Officer Jones had also been attracted by the flak and bomb bursts and he followed in closely to drop his bombs. He saw no hits but all firing then ceased. At 12.10 a.m. Flight Lieutenant Masson[1] saw three E-boats in line astern some 15 miles north-west of the first group and he also bombed, while at 12.15 a.m. Flying Officer Sykes,[2] who had turned towards the position of Masson's attack, found and bombed two E-boats proceeding slowly in line abreast. The only other aircraft on the

[8] F-Lt E. W. Watson, DFC, 413699; 455 Sqn. Schoolteacher; of Drummoyne, NSW; b. Sydney, 18 Apr 1915.

[9] F-O J. C. Payne, DFM, 420268; 455 Sqn. Salesman; of Lismore, NSW; b. Lismore, 4 Aug 1919.

[1] F-Lt I. H. Masson, DFC, 127828 RAF; 455 Sqn. Student; of Bathgate, Scotland; b. Co Tyrone, Ireland, 16 Feb 1919.

[2] F-Lt S. J. Sykes, DSO, DFC, 422751; 455 Sqn. Grazier; of Goulburn, NSW; b. Goulburn, 21 Apr 1920. Killed in aircraft accident 19 Jan 1957.

scene had been fired on by a single E-boat just after midnight, but had not been able to find it again in time to bomb.

The apparent silencing of enemy gunfire and the varying number of E-boats reported by individual pilots gave hopes of a great success, but in fact only minor damage was caused during this action. It did serve to emphasise, however, that Allied aircraft were always available day and night to attack any movements along the enemy coast, and this in turn may have influenced enemy plans, because, with the exception of one flotilla of E-boats, the Germans made no attempt during June to transfer light forces to the vital English Channel area.

With the E-boat situation partly solved Air Chief Marshal Sholto Douglas early began to turn his anti-shipping strike wings against German coastal merchantmen, slower and less manoeuvrable targets which offered a greater positive result from air attack. Reconnaissance flights naturally looked for both types of shipping, and if naval vessels had shown themselves they would have received priority for attack, but in their absence it was important to give the squadrons opportunities of joining in the large-scale cooperative anti-shipping attacks for which they had been specially trained. The outstanding strike of June 1944 in fact gave a chance to strike at both merchant and light naval vessels because enemy convoys were being forced to demand larger and larger screens of small anti-aircraft ships. By forcing the Germans to use their R-boats in this fashion Coastal Command was indirectly preventing their use in the assault area as minelayers.

On this occasion an enemy convoy was reported near Schiermonikoog early on 15th June and the North Coates and Langham Wings combined to inflict a crushing blow. The attacking force consisted of No. 254 Squadron (10 Beaufighters armed with torpedoes and 4 with cannon), No. 236 Squadron (5 Beaufighters armed with 25-lb rocket projectiles and cannon), No. 489 Squadron (11 cannon-Beaufighters) and No. 455 Squadron (12 cannon-Beaufighters). This force formed up shortly after dawn with No. 236 leading, Nos. 489 and 455 on the flanks and the torpedo aircraft of No. 254 in the rear, the whole formation being escorted by Mustangs. At 5.56 a.m. the enemy convoy, consisting of an 8,000-ton merchantman[3] and a 4,000-ton E-boat depot ship with an escort of 10 "M" class minesweepers and 7 R-boats, was duly found off Ameland. All the ships were flying balloons and they began to throw up a curtain of fire as soon as the aircraft appeared, but this was almost completely neutralised by the concerted attack of the three leading Beaufighter squadrons, so that the torpedo carriers were able to make an unhurried, well-judged approach scoring two torpedo hits on each of the two major vessels both of which were totally destroyed. The escorts also fared badly as one "M" class minesweeper attacked by Squadron Leaders Wiggins and C. G. Milson and Flying Officer Cock,[4] all of No. 455, was so

[3] The *Amerskerke* which was on her maiden voyage.

[4] F-O C. E. A. Cock, DFC, 415510; 455 Sqn. Accountant; of Maylands, WA; b. Northam, WA, 16 May 1918. Killed in action 25 Sept 1944.

badly damaged by cannon fire that she was seen to blow up and sink. Four other minesweepers were badly damaged and all the minor vessels hit in some degree. Timing had been so well maintained that none of the aircraft had been lost although several were damaged; they re-formed immediately into approximate squadron formation and returned to base. This was the largest and most successful strike yet laid on by Coastal Command and gave a tremendous boost to the spirits of the Australians at Langham; they felt they had acquitted themselves well and looked forward to similar opportunities.

While German naval action against Allied supply lines had little success the German Air Force continued to mount 60-70 sorties nightly to drop mines and circling torpedoes off the invasion coast. The cumulative effect of mining had indeed become so serious by 24th June that Admiral Ramsay was forced to reduce to a minimum all traffic, and the speed at which ships might move in the danger area, until a thorough sweeping could be carried out. Losses dwindled when these safety measures came into effect but they entailed much delay in the handling of landing-craft and supply ships and thus retarded, although not to a critical degree, the Allied build-up ashore. This form of night air action was difficult to combat because the enemy bombers had a large general area in which to plant their mines and were only in the target area for a very short time. Like the anti-submarine patrols, the chances of the Allied night fighters fell considerably because of the new enemy policy. No. 456 Squadron claimed the destruction of an He-177 off the French coast on 13th-14th June and a Ju-88 the next night, but after this there was a distinct slackening off and during the rest of the month only two combats occurred, with a Ju-88 and a Henschel Hs-129, neither of which was seen to crash. The intermittently adverse weather which made this a far-from-normal June gave the enemy greater chances of evading night fighters, but, as will be seen, No. 456 also had to divert a proportion of its effort after the 15th to combat the new threat of enemy robot aircraft, and this also favoured the enemy minelayers.

It was weather rather than enemy action which posed the only serious threat to Allied logistic plans. Even if Cherbourg was captured quickly, it might take weeks to clear it ready for use as an unloading terminal, and therefore Allied supply arrangements depended upon the Gooseberry breakwaters and Mulberry prefabricated harbours. Allied build-up had far outstripped the enemy reinforcement rate. The millionth Allied soldier stepped across on 4th July and by that time nearly 1,000,000 tons of stores and 300,000 vehicles had also been safely delivered. The beach-head, which averaged only 15 miles in depth, was congested with supplies and transport, which offered magnificent targets had the German Air Force been able to take advantage of them.

The Allied air forces were still responsible for interfering with German lines of supply as well as for protecting their own. Along the original Seine-Loire line of interdiction the whole transport system, but especially the railways, had been thrown into such confusion by accumulated damage

that industrial and other non-military traffic had all but ceased, while only a minimum of military movement was possible. It was now intended to widen the area over which these conditions prevailed by striking at traffic centres in eastern France, untouched or repaired since the pre-invasion campaign against communications. Thus between 13th and 30th June R.A.F. Bomber Command carried out 16 raids against rail choke points during which 1,774 aircraft were dispatched, 1,614 bombed their targets and 5,620 tons of bombs were dropped. Weather seriously interrupted operations during the gale of 18th-22nd June and again between the 25th-27th, and attacks against Aulnoye and Montdidier on the 17th-18th were almost entirely abortive, but some of the raids were outstandingly successful. The Australian heavy-bomber squadrons joined in only six, all in the latter part of the month: No. 460 attacking Reims (22nd-23rd), Vaires (27th-28th) and Vierzon (30th June-1st July); Nos. 463 and 467 attacking Limoges (23rd-24th) and Vitry-le-Francois (27th-28th), and No. 466 bombing Blainville sur L'Eau on the 28th-29th.[5] In all the R.A.A.F. squadrons sent out 139 aircraft. Enemy defences were patchy but over the whole series of raids 65 aircraft (3.6 per cent) were lost, the worst casualties being sustained during the deep penetration to Vierzon when 14 out of 118 Lancasters were shot down (11.8 per cent). On several occasions individual Australians and sometimes whole crews, forced to parachute after enemy attack, were successfully hidden by French patriots.

Absolute assessment of each raid is virtually impossible because although contemporary photographs show impressive cratering at nearly all targets, some traffic could generally be passed through even the most heavily damaged railyard, and, conversely, minor damage at many points could bring about such confusion in the delicate integration of traffic that more general delay would ensue than from complete elimination of one marshalling yard. There is no doubt, however, that the total effect of this campaign to form a second ring of traffic blocks behind the enemy lines was very successful. French railway records and enemy testimony (although there may be a tendency in defeat to over-emphasise) show clearly the shifts and improvisations consequent on the general slowing down of the whole system. Temporary fuel or road vehicle shortages also complicated the pattern at times, but there is no doubt that at the very time when they were striving every nerve to bring supplies quickly into the front line, the Germans had to chop and change their traffic priorities to fill only the most urgent needs. Under these conditions it was almost impossible for commanders in the field to gather the resources for more than a local counter-attack and the interdiction campaign was clearly a large factor in continuing Allied successes in Normandy.

The dislocation of enemy rail communications also had an important effect on the German "reprisal weapon" campaign, whose origins and

[5] Targets raided by other forces (including individual R.A.A.F. airmen) were Cambrai, Douai and St Pol (14-15), Lens and Valenciennes (15-16), Aulnoye and Montdidier (17-18), Laon (22-23), Saintes (23-24) and Metz (28-29).

progress will be described in the next chapter. This campaign had already been delayed by the heavy raid in August 1943 against the experimental station at Peenemunde and subsequent destruction of or heavy damage to nearly all the prepared ski launching sites in northern France. From March 1944 onwards, however, the Germans began to construct simpler launching sites in wooded areas that partly defeated Allied reconnaissance and were so difficult for fighter-bombers to attack that only one experimental raid was made before 6th June, although 66 sites had by then been identified and others were thought to exist. But, while the Allies temporarily neglected the threat, Hitler had great confidence in the ability of the V-1.[6] Like the pressure mines it could have been employed earlier but was retained as a surprise to be used on an overwhelming scale at the moment of greatest danger—during the assault period itself. The weakness of the "modified sites" was that they had no storage facilities and so firing could not begin on 6th June and was in fact delayed by transport difficulties until the night of 12th-13th June, when the Allied lodgement was already assured and even Hitler had modified his expectations: "It is hoped that the long range bombardment of London . . . will on the one hand divert enemy (i.e. Allied) aircraft and on the other induce the enemy to attempt a second landing in France."[7]

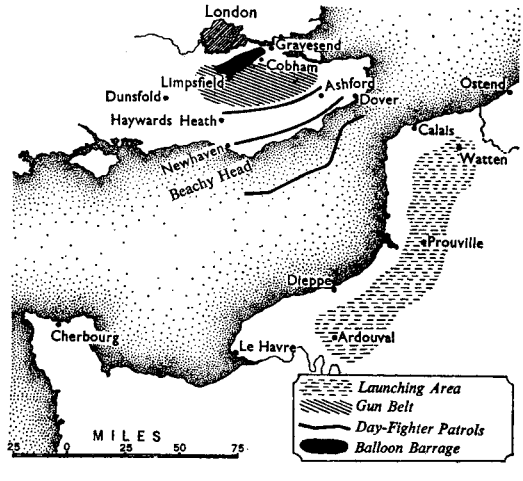
It is noteworthy that the new weapon was not to be used against the immediate Allied supply lines. Two-thirds of the original "ski sites" had been orientated against London and the remainder against Bristol, a pattern which was repeated with the modified sites. Hitler had often been impelled by a desire to divert bombing away from Germany (as with the Brest naval squadron during 1941 or the decision to continue U-boat operations in late 1943) and this dictated his decision to employ the V-1 principally against London as an indirect military and quasi-political weapon. This diversionary aim was not without some measure of fulfilment; when 10 V-1's were fired on 12th-13th June Allied thought veered immediately from indifference to acute concern. Only four flying bombs actually fell on southern England that night and there was then a complete lull for three days while the enemy feverishly attempted to overcome the difficultes of supplying his scattered launching sites. When the attacks were resumed on a heavier scale on 15th-16th June nearly 250 flying bombs were dispatched of which 144 crossed the English coast and 73 reached Greater London. The British War Cabinet determined that although the sustained enemy rate of fire could not be forecast there should be no vital change to the campaign plan in France. The threat was to be allayed principally by air counter-measures and not by a land offensive to secure the area from which the bombs were launched. General Eisenhower readily accepted this decision and gave orders that enemy flying-bomb installations were to take priority as targets over everything

[6] ACM Sir Roderic Hill's Despatch, para 49: "I think, therefore, that at the end of May and in the first half of June the threat from the 'modified sites' was under-estimated, not in a sense of failure to apprehend it intellectually, but in the sense that it was not felt as keenly as the original threat from the 'ski sites' six months earlier. . . ."

[7] *Fuehrer Conferences on Naval Affairs*, p. 32.

except the urgent requirements of the beach-head battles. The interpretation of this blanket directive was to entail some difficulties.

Air action to defeat the V-1 campaign could be applied in two main ways—by a general preventive attempt to destroy the factories where the missiles were built, the storage centres where they were held, or the sites from which they were launched; or by attacks against individual weapons once they had been dispatched. For the second of these alternatives a comprehensive plan to deploy anti-aircraft guns, balloons, radar sets and fighters south of London (and Bristol) had long been prepared, and the new dispositions were ordered by Air Marshal Sir Roderic Hill[8] on 16th June.[9] A month's warning had been anticipated in which to erect the defence screen but in the event the main transfers were made by 21st June. Fighters as the first line of defence were to patrol at 12,000 feet along three lines, 20 miles to sea between Beachy Head and Dover; over the coastline between Newhaven and Dover, and inland between Haywards Heath and Ashford. The gun defences (363 heavy and 522 light anti-aircraft guns by 28th June) were sited mostly in hollows along the southern slopes of the North Downs, while a barrage of nearly 500 captive balloons between Cobham and Limpsfield formed the third line of defence.



Thus the fighters of A.D.G.B., which had remained as a potential pool of units for A.E.A.F., now found themselves facing an urgent and difficult task. The diversion of the Mosquito night-fighter squadrons to this new duty was directly at the expense of OVERLORD commitments, and it was soon found necessary to strengthen the day patrols with Mustangs withdrawn from Second T.A.F. because only they and the Spitfire XIV and Tempest V were really fast enough to intercept the robot bombs at the speed and height which they actually operated, both of which were slightly different from those calculated in advance. In other circumstances this

[8] Air Chief Marshal Sir Roderic Hill, KCB, MC, AFC. (1914-18: 60 Sqn RFC 1916-17.) Comd RAF Staff College 1942-43; AOC 12 Fighter Gp 1943, ADGB 1943-44, Fighter Command 1944-45. Regular air force offr; b. 1 Mar 1894. Died 6 Oct 1954.

[9] The original ADGB CROSSBOW plan dated 2 Jan 1944 was prepared on the assumption that attacks were imminent and would occur before OVERLORD. The striking success of AEAF and Eighth Air Force in neutralising the ski sites caused some optimism, and this together with the possibility that OVERLORD and the enemy flying-bomb campaign might then coincide caused a redrafted plan on 4 Mar by which the strength in guns and searchlights was much reduced as these were needed for the beach-heads. This modified plan did not take into consideration the possibility of enemy use of prefabricated launching sites, but was the one substantially invoked on 16 Jun.

retention of the fastest fighters for defence of the United Kingdom might have had serious consequences, but the Allies were so well supplied and the Germans so weak over Normandy that no real military advantage resulted for the enemy. On the other hand it was not entirely without effect in limiting the Allied fighter potential. And soon a great part of the Allied bomber strength was being used against V-weapons, as described in the next chapter.

The decision that measures to abate the flying-bomb nuisance were to be given first call on air power once the needs of the battlefield were met led to much argument throughout June concerning both this general priority and the manner in which offensive-defensive action should be developed, but neither the British War Cabinet nor the Supreme Commander were willing at this stage to change the extent or application of the counter-measures.

Before the need arose to divert attacks against the enemy V-1 organisation it had been intended to employ much of the capacity of Bomber Command for night attacks immediately behind the battle area—at least until logistical superiority had been clearly achieved by the Allies. Thus on 14th-15th June No. 5 Group attacked German vehicle and troop concentrations at Aunay-sur-Odon. Seventeen Lancasters of No. 463 and 16 of No. 467 bombed and returned without loss, crews claiming a "devastating concentration" around the aiming points. On the same night No. 466 joined in a similar but smaller attack on Evrecy, Australian crews bringing back good aiming point photographs. On 15th-16th June Nos. 463 and 467 bombed a fuel dump at Chatellerault where eight storage units were destroyed but no large fires were caused as had been hoped. Each of these raids was individually successful but would have had to be quickly followed by others for serious pressure on the enemy to have resulted, although even had the effort employed against "Noball"[10] units been applied thus, it is not certain that the enemy position would have been so affected that a quick British victory at Caen would have been possible. As it was, the next Australian raid of this type was on 30th June-1st July when 16 Halifaxes of No. 466 flew in a No. 4 Group attack on enemy troops at Villers Bocage.

There was a noticeable decline during the latter part of June in the weight of daylight air attack against bridges inside the line of interdiction around the battlefield. Between 13th and 30th June the American Eighth Air Force dispatched approximately 900 aircraft and A.E.A.F. nearly 2,000 on this task, but over half the heavy bomber and one-third of the medium and fighter-bomber attacks came on a single day—the 15th, when 35 individual targets were bombed. Thereafter bad weather, the priority given to Noball targets, and special needs such as close support to troops investing Cherbourg, permitted only a modest scale of effort although there was some activity almost every day. There was certainly no sudden revival of enemy transport within the shattered

[10] "Noball" was the codename given to the campaign against V-weapon targets such as ski sites and supply depots.

area, and it is difficult to estimate how much tighter the ring might have been drawn had the level of effort expended during the assault period actually been continued throughout the month. Australian participation during this phase was very small and consisted mainly of attacks by Mustang fighter-bombers and rocket-firing Typhoons on minor bridges fairly close to the enemy front line. Some of these attacks were pre-briefed and deliberate, while others were incidental and arose from lack of other targets during armed sweeps. Some Australian pilots including Pilot Officer Bavinton[1] (609 Squadron) and Flying Officers Cooper,[2] Plumridge[3] and Baragwanath[4] (19 Squadron) claimed hits or near misses, but in general this series of attacks did little direct damage although it was a constant embarrassment to the enemy.

At night No. 464 Squadron continued to play an important part in the combined measures aimed at restricting the enemy's ability to bring troops and supplies into the forward area. The Mosquito patrols were especially valuable when Bostons and Mitchells were withdrawn from this task for daylight duties over the Pas de Calais area, and despite the frequently bad flying weather No. 464 Squadron operated on no fewer than 13 nights. The railway centre at Le Mesnil was the primary target on 12th-13th June, the aircraft attacking in pairs by the light of flares and reporting some direct hits on tracks and station buildings. On 13th-14th, a very dark night, 12 R.A.A.F. Mosquitos were sent out on general armed reconnaissance over the Tours-Alencon area; most of the pilots bombed and strafed unidentified lights on roads and railways or in wooded areas, but several attacked the alternative target—the railway yards at Mezidon where some fires were started. Similar patrols followed during the next few days, but as Gravesend was directly in the line of fire of the enemy V-1's, it was found necessary to use Dunsfold airfield for operations and to move to Thorney Island near Portsmouth on the 18th. The main camp was established during the strong gale of the 19th and there were no patrols that night, but on the 20th-21st, when 16 Mosquitos operated, Flight Lieutenant Parsons[5] bombed Chartres, strafed a convoy of three motor vehicles and then attacked a train, while all other pilots found similar minor but worthwhile targets.

During the rest of the month a further 78 sorties were flown mainly near Dreux, Evreux and Vire in an attempt to harass the movement of the *9th* and *10th Panzer Divisions* which were moving from Paris towards the battlefield. Attention was then directed to the fighting near Caen where a hastily mounted but desperate enemy counter-attack was being prepared to blunt the British drive towards the Orne River. On 29th-30th

[1] F-Lt R. E. Bavinton, 403895. 238 Wing, 609 and 288 Sqns RAF. Clerk; of Granville, NSW; b. Parramatta, NSW, 14 Sept 1917.

[2] Sqn Ldr F. B. Cooper, 409085. 19 and 234 Sqns RAF. Bank clerk; of Coleraine, Vic; b. Elsternwick, Vic, 21 Jan 1920.

[3] F-Lt P. B. Plumridge, 408928. 231 and 19 Sqns RAF. Clerk; of Benalla, Vic; b. Invercargill, NZ, 29 Jan 1917.

[4] F-Lt J. D. Baragwanath, 409369; 19 Sqn RAF. Warehouseman; of Toorak, Vic; b. Albert Park, Vic, 6 Mar 1920.

[5] F-Lt W. D. Parsons, DFC, 408134. 114 Sqn RAF, 464 Sqn, 516 Sqn RAF. Schoolteacher; of Launceston, Tas; b. Burnie, Tas, 27 Mar 1919.

June 16 R.A.A.F. Mosquitos were sent to attack the enemy assembly and support area at Villers Bocage. All pilots attacked but, although some fires and bomb bursts were seen in the town, results were generally unobserved and the same area was attacked next day by heavy bombers.

Whatever the effects of the diversion of aircraft from indirect support duties, the Allied armies enjoyed an ever-increasing amount of direct support from fighters and fighter-bombers, its extent being limited rather by lack of airfields in France and control machinery than availability of aircraft. The first airfield engineers went ashore on 6th June and quickly made three emergency landing strips (E.L.S.) for aircraft in distress; they then concentrated on refuelling and rearming strips (R. and R.S.), four of which were ready by 10th June and which were progressively enlarged to advanced landing grounds (A.L.G.) and finally into completely equipped airfields. The air plan called for 18 airfields in France by 10th June and 27 by the end of the month, but delay in securing some of the sites chosen in advance and the non-delivery of metal runway material meant that in fact only 17 were finished in this period. By 20th June 8 Spitfire, 3 Typhoon and 3 Auster squadrons were established in the beach-head and, although several of the airfields were subject to enemy shell fire which at times caused temporary withdrawals, there were 19 British and 12 American squadrons in France by the 30th. As the total enemy day fighter resources in France at this time amounted to fewer than 500 aircraft, the Allies had immediate parity much closer to the front line and vast resources in the United Kingdom which could be called upon for pre-planned operations.

Army commanders were well satisfied with the situation, but Leigh-Mallory and Coningham chafed at the delays in bringing a greater proportion of their forces forward so that they could put into full operation the highly integrated system of reconnaissance, group control centres, fighter direction posts, forward control posts, and air support signals units, specially developed to give frequent and speedy close air support by aircraft operating either in a cab rank or on demand. While aircraft intended for offensive duties remained based in southern England delays of 90 minutes between demand and execution had to be accepted, a situation far from welcome to the air commanders, who wished to make their mark on the battle and who were inclined to impute a pedestrian quality of thought to the army at this time.

Air defence of the lodgement area presented no difficulties during daylight. By 13th June all German fighter resources in France had been amalgamated under *Jagdkorps II* and the policy of turning fighters into fighter-bombers had been sharply reversed, all aircraft being employed "from time to time in combined massed attacks in order to provide temporary relief over the front line and the supply routes of the Army". By the end of the month Field Marshal Sperrle, commanding *Luftflotte 3,* reported to Hitler that an additional "twelve to fourteen hundred" fighters were needed in France, but as the total day fighter first-line resources in

all areas at that time amounted only to 1,400 aircraft this was a tacit admission that little success could be expected even in defence.[6] Under such conditions British fighters were not called upon to oppose enemy attacks and the only excitement which marked their patrols came when they encountered enemy fighters making heroic demonstrations over the front line.

The pilots of No. 453 Squadron flew uneventful patrols until 16th June. The previous evening they had flown a last-light patrol and landed on an advanced landing ground in France and now were ordered to patrol over Caen. Twelve Me-109's were sighted of which two were claimed as destroyed, two probably destroyed. Squadron Leader Smith, Flight Lieutenants V. A. Lancaster and McDade, Flying Officer Lawrence[7] and Warrant Officer Seeney[8] and Pilot Officer Rice[9] all made repeated attacks and shared in the claims. On 24th June No. 453 again operated from an A.L.G. in France, but finding no enemy in the air shot up trucks and rolling-stock south of Caen. The next day the whole unit moved into A.L.G. B.11, an airfield free from enemy shelling but one on which the dust was a nuisance and living conditions primitive and overcrowded.[1] The Australians, however, relished this "long awaited move" and celebrated their arrival by a dive-bombing attack on a wood south of Caen. There was no longer any rigid distinction between defensive, fighter, and ground-support units, and patrols were principally designated as armed reconnaissances although bombs were not always carried. The effects of dust showed themselves on 27th June when eight R.A.A.F. Spitfires patrolled over the Odon battle. McDade's section "struck a good patch of Hun motor transport, the pilots' dream for shooting up, but, unfortunately the dust picked up on the take-off strip proved too much for the guns", which would not fire. Four aircraft returned to base but Lancaster's section encountered and engaged eight FW-190's, claiming damage to two. The same evening Lancaster was leading a patrol when he was "bounced" by six FW-190's and slightly wounded when enemy fire wrecked his perspex windscreen, but he was able to recover and attack one of the enemy aircraft which was claimed as "probably destroyed".

Most of the Australians scattered among other Spitfire squadrons shared the same experience as the pilots of No. 453 with purely defensive patrols merging into impromptu close support towards the end of the month. The sheer weight of Allied patrols over the battlefield told heavily against the enemy, but losses were by no means one sided as on 23rd June when No. 229 Squadron met six FW-190's; Flight Lieutenant Small[2] was seen

[6] Sperrle quoted in *Fuehrer Conferences on Naval Affairs*, p. 35.

[7] F-O K. K. Lawrence, 286340; 453 Sqn. Salesman; of Fullarton Estate, SA; b. Adelaide, 12 Oct 1919.

[8] W-O C. A. Seeney, 414519; 453 Sqn. Farm labourer; of Gatton, Qld; b. Goodna, Qld, 12 May 1923. Killed in action 25 Jul 1944.

[9] F-O C. A. Rice, 411643. 64 Sqn RAF, 453 Sqn. Grocery assistant; of Armidale, NSW; b. Armidale, 24 Feb 1917. Died 7 Jul 1954.

[1] Some officers claimed that the dust in Normandy was worse than in the African desert. Certainly the phenomenal activity of wheeled and tracked vehicles in the confined beach-head caused a surface crumbling which had perhaps not been fully anticipated. Later the frequent rains turned airfields and dispersal areas into mudheaps.

[2] F-Lt R. H. Small, 412727; 229 Sqn RAF. Chocolate manufacturer; of Epping, NSW; b. Epping, 3 Sept 1921. Killed in action 23 Jun 1944.

to shoot down one of the German aircraft but he himself was almost immediately attacked and killed. Mustang squadrons were employed mainly in attacks on enemy communications but it frequently happened that enemy aircraft were engaged either before or after the Mustangs had bombed. As they went farther afield for their targets than the Spitfires, and as the Germans were making determined efforts to palliate the worst effects of the remorseless campaign against their communications, the Mustangs in fact had more opportunities for combat. For example, No. 19 Squadron claimed to have destroyed 2 of 3 Me-109's met en route to Rambouillet on 14th June, 2 of 16 FW-190's near Evreux on the 20th; 4 of 10 Me-109's near Argentan on the 21st; and 4 of 20 Me-109's near Dreux on the 24th. Of the pugnacious band of Australians serving with this squadron, Warrant Officer Bell[3] did best, reporting victories in the first and last engagements, but others made minor claims as well. When No. 19 Squadron moved to France on 25th June its opportunities actually diminished because it began to attack bridges on the outskirts of Caen in support of the Second British Army, and enemy aircraft were intercepted by Spitfires before they could make contact with the Mustangs.

As implied in the air plan, almost all operations of the Typhoon squadrons were on close and direct support of the ground forces. Typical early targets were of the static variety, such as a tall chimney at Colombelles attacked on 14th June by No. 247 Squadron because it was used by the enemy as an observation post; oil and storage dumps were frequently allotted as targets at this time. The Typhoons moved as quickly as possible into the beach-head and, although one wing had to be withdrawn between the 22nd-24th partly because of enemy shelling[4] and partly to fit dust excluders, for the rest of the month they engaged in tasks given them according to the hour-to-hour needs of the army. Targets were now mostly of the fleeting type—self-propelled guns, tanks and temporary strongpoints in villages, the exact position at the time of the aircraft's arrival frequently being indicated by smoke shells fired by Allied artillery.

The Typhoons also operated under command of the visual control posts as on the 28th when several squadrons attacked enemy tanks dug in near Esquay during the Odon fighting. Flying Officer Sellick[5] of No. 247 Squadron led one of these attacks, all of which were in the face of intense enemy fire, and, although his aircraft was hit during the approach, he did not hesitate to dive and engage the gun site with cannon, thus drawing the enemy fire while his companions completed their run. He himself then attacked the primary target with his rockets and flew his damaged aircraft safely back to base. Flight Lieutenant Calder[6] of the same squadron also frequently led attacks at this time, and, although

[3] P-O M. H. Bell, DFC, 405995; 19 Sqn RAF. Tractor driver; of Bowenville, Qld; b. Toowoomba, Qld, 19 Feb 1923. Killed in action 9 Sep 1944.

[4] Nos. 181, 182 and 247 Squadrons moved to B.6 on 21st June. During the night and early next morning approximately 70 anti-personnel shells landed on the airfield.

[5] F-Lt K. B. Sellick, DFC, 407755. 128 and 247 Sqns RAF. Survey draftsman; of Hyde Park, SA; b. Adelaide, 18 Mar 1922. Killed in aircraft accident 1 May 1946.

[6] F-Lt S. E. Calder, DFC, 416069. 182 and 247 Sqns RAF. Jackeroo; of Toorak, Vic; b. Melbourne, 10 Aug 1916.

the Typhoons did not accomplish as much material damage as was thought at the time, they had a most unnerving effect on enemy troops, whose commanders alternatively pleaded for, or demanded, more protection from their own air force.

The extent and variety of uses to which air power was put during June undoubtedly did much to bring success to the main Allied intention of building up in France a force numerically superior and better accoutred than the enemy facing it. On 29th June Hitler summed up his conception of the war situation:

> The overpowering aerial superiority of the enemy and his very effective naval artillery limit the possibilities of a large scale attack on our part. We cannot fix the time of an attack; it is dependent on when troops and supplies can be brought up and this cannot always be calculated in advance. On the other hand we must not allow mobile warfare to develop, since the enemy surpasses us by far in mobility due to his air superiority and his superabundance of motor vehicles and fuel. Therefore everything depends on our confining him to his bridgehead by building up a front to block it off.

Great as was the sum total of the pressure applied by Allied air action, the expenditure, in terms of sorties, bombs and other missiles, fuel, direct losses and the consumption of the useful life of both aircraft and aircrew, was also very large. The "when-in-doubt-bomb-it" attitude of mind was possible only because of the fortunate material situation in which the Allies now found themselves, and, had their means been more straitened, the selection of targets may well have occasioned more detailed scrutiny. Critics were by no means lacking both inside and outside the air force, because the extreme flexibility and range of air power lent itself to the most diverse theories. Harnessed as they were to a common project to which they wished to give full loyalty in action, American commanders still burned to exploit their own tenets; Bomber Command was convinced that it had already found the key to victory in bombing German cities; and A.E.A.F., which temporarily held the commanding position because of its ability to call on both the Strategic and Tactical Air Forces, desired to commit everything possible to the immediate battle in France.

Australian airmen, however, were remote from such problems and appreciated only dimly these differing opinions. All they saw was their own small section of the task and, in general, each man was satisfied that what he was doing was in fact worthwhile and a contribution to ultimate victory; offensive spirit was high and there was general satisfaction at being able at last to fly with the odds so markedly in their favour. Nevertheless, the ever-increasing numbers of Australians in Bomber Command were bound to contrast their current employment with the bombing of Germany which had been the central theme of their indoctrination since entering into operational training units. Their interest was heightened by four major and a few minor raids against Germany during June 1944, although the targets given were scattered oil installations and not major cities, as described in a later chapter.

CHAPTER 8

THE THREAT FROM LONG-RANGE MISSILES

THE ability to produce a revolutionary weapon at a period of stalemate during a long war, or to stave off impending defeat, has been the dream of military strategists since the dawn of history. In mid-1944 Australian aircrew serving in the United Kingdom, who had themselves lived through a short era when radar with its many applications had virtually added a new dimension to warfare, were mentally prepared for fresh marvels. Many knew that the jet engine was about to be put into service by both the R.A.F. and the *Luftwaffe*; Intelligence reports repeatedly warned that the *Schnorkel* breathing apparatus and, after a greater delay, the closed-cycle combustion engine would restore great tactical advantages to German submarines. Magnetic and acoustic mines, circling torpedoes, butterfly bombs and a vast range of improvements to conventional weapons had amply revealed the inventiveness of military technologists and the mass-production capacity of major nations geared for war.

The major threat was seen, however, in the possibility that Germany had designed and produced in large quantities a weapon or weapons which could reach beyond the range of even the largest guns, which could be accurately guided by electronic or robot navigation to a precise target and which would prove less costly to manufacture and less complex to operate than aircraft. German propaganda made tremendous claims concerning the capabilities of weapons held in reserve for final crippling blows on both the western and eastern enemies of the Reich. Geographical factors made the threat especially significant to London and the southern ports of England where were assembling the men and material committed to the invasion of "Hitler's Europe". In the absence of known facts this propaganda could not be ignored or put into correct perspective as could the concurrent German claims regarding the impregnability of the defensive Western Wall, the resurgence of U-boat warfare or the imminent defeat of Anglo-American round-the-clock bombing by a new aerial defence plan.

Disregarding German propaganda concerning the so called *Vergeltungswaffe* (reprisal weapons) Allied Intelligence sources provided sufficient evidence to justify acute apprehension without any clear indication of how the threat was to be avoided or overcome. As early as 1939 the British Intelligence service received from neutral sources a detailed summary of German rocket weapons then in the research and development stage. It was well known that in the 1920's German aeronautical scientists, debarred by the terms of the Versailles Treaty from developing military aircraft, had given thought to unconventional rocket-propelled vehicles. These early enthusiasts based their experiments on hopes of trans-Atlantic airmail services by rocket or on long-term preparation

for astronautical exploration, but in 1931 the German Army called for specific designs of a rocket capable of carrying a war-head. Military specifications of what later popularly became known as the V-2[1] were laid down in 1936 and, with the encouragement of Field Marshals von Fritsch and von Brauchitsch, the military rocket program by 1939 was absorbing a relatively large part of government aeronautical research facilities.

Hitler, who had visited the army experimental rocket station in 1933, was not fired with enthusiasm for the possibilities of long-range missiles until April 1942, when General Dornberger proposed a plan for firing 5,000 A-4's a year against England, to begin in mid-1943 if orders were given immediately that sites be prepared and continuous production of the weapon begun.[2]

Meanwhile the German Air Force, which had failed since mid-1941 to carry against England any significant bomb-load, was averse to the idea that the task of bombardment should be taken over by the army. Goering ordered his research scientists to produce a cheaper and less complex weapon than the A-4 so that the *Luftwaffe* could regain the initiative. In a remarkable spate of energy and ingenuity the FZG76 flying bomb was quickly developed.[3] Both weapons and both Services competed for Hitler's favour and to some extent obstructed each other's progress and the production of other essential material and weapons until March 1943 when Speer was made Minister for War Production. Then a new target-date was set for both A-4 and FZG76 firings; they were to be used on 15th January 1944 against London in conjunction with heavy bombing attacks by the *Luftwaffe*. Hitler had already authorised the building of a chain of A-4 rocket-firing sites in northern France. By August 1943 Speer had allocated an additional 40,000 workmen of the Todt engineering organisation, then building the defences of the West Wall, to the task of preparing 96 sites mainly in the Pas de Calais and Cherbourg peninsula for use by the *Luftwaffe Flak Regiment 155(W),* which was specially trained to operate the FZG76. Speer also made factory space, labour and materials available so that 5,000 flying bombs would be on hand by the end of 1943 and the production rate at that time would be 5,000 a month.

Such were the German plans. The cost was high in terms of diversion of skills, effort and materials from other commitments—but the stakes were equally high. Hopes were entertained that A-4 and FZG76 firings together with a renewed bombing offensive would inflict a steady bombardment of up to 94,000 tons of high explosive a month on London.

[1] The V-2 is so called because it was the second reprisal weapon actually put into service. In fact the A-4 (No. 4 in the army series of projects), as it was designated, in development and proving antedates the FZG76 (*Fern Ziel Geraet*=long-range target apparatus), the *Luftwaffe* weapon designed in 1941 and known as the V-1. The "V" designation originally denoted *Versuchmuster* (experimental model) and the change to *Vergeltungswaffe* was made purely for propaganda purposes.

[2] Dornberger was very confident about the capabilities of A-4. The first full-scale model was fired in June 1942; the fourth on 3 October 1942 hit its specified target some 120 miles away.

[3] The first powered FZG76 was launched at Peenemunde on 24 December 1942 and flew a distance of 3,000 yards. By July 1943 improved models had a range of 150 miles and an accuracy of half a mile on target.

Hitler hoped that, if London could be hit sufficiently hard, effective planning and execution of the Allied plan for invasion would be halted.

Allied reaction to German rocket potential was on an academic scale until 12th April 1943 when the British Chiefs of Staff reviewed agents' reports of alleged firings at Peenemunde and of the closing of a large section of the Baltic to shipping. The scientific adviser to the War Cabinet urged strongly that a threat from "secret weapons" should be taken seriously. A special committee with wide powers was set up to advise the War Cabinet. As had become normal practice, corroboration of agents' reports was sought first from R.A.F. photographic-reconnaissance flights sent to the suspected Baltic weapons-proving grounds. In May 1943 a flying bomb was identified in a photograph taken over Peenemunde while other photographs at the same location showed "two large objects which appeared to be rockets some 40 feet long and 7 feet wide". Thus the weapons certainly existed but, although selected prisoners of war were interrogated and other Intelligence expedients were set in motion, no additional details were at first gained. This again threw the burden of defining the threat back to the R.A.F. Between 1st May 1943 and 31st March 1944 nearly 40 per cent of Allied photographic-reconnaissance sorties dispatched from Great Britain were devoted to gaining information concerning the secret weapons, their testing grounds, production centres and launching positions. Ultimately over 1,250,000 aerial photographs were taken and more than 4,000,000 prints prepared. This was the first of many tasks given to the R.A.F.—a large commitment which fortunately did not lead to serious interference with other needs because Allied photographic-reconnaissance resources were very strong and the aircraft could operate almost at will in the prevailing circumstances.

The early reconnaissance discovered in May 1943 a new large concrete construction at Watten near Calais. In the next few months a further six large sites were discovered between Cherbourg and Calais—all assessed as being storage or assembly points on a gigantic scale for rockets or flying bombs.[4] The very size of these emplacements gave rise to gloomy predictions that the Germans had rockets with possibly up to 10-ton war-heads.

In October 1943, pilots brought back photographs of a second type of German construction in the Pas de Calais—a series of concrete structures some 300 feet in length resembling giant skis. By the middle of November 21 ski sites had been discovered, all pointing directly towards London. A concentrated long-range bombardment of the nerve centre of Allied preparations appeared to be the logical purpose of these dispositions and they were immediately and correctly assessed as firing sites for the flying bomb. Intensified aerial reconnaissance was ordered early in December 1943 with the result that no fewer than 75 ski sites in various stages of completion were identified in a belt 20 miles deep

[4] These sites, mainly underground with reinforced concrete walls up to 30-feet thick, extended for thousands of feet and the largest could have accommodated 200,000 people.

extending for 300 miles in northern France. Again the magnitude of the threat to OVERLORD preparations appeared to increase markedly. The time for evaluation was over and the time for action had arrived if such a threat were to be met.

Before December 1943 there was considerable Allied indecision concerning what action should be taken against the new German preparations. Some influential British and American voices even declared that the large sites and the ski sites were nothing but an elaborate hoax designed to divert war potential from the build-up for OVERLORD.[5] The result was that, apart from the Bomber Command attack against Peenemunde on 17th August 1943 and an Eighth Air Force attack against the Watten installation 10 days later, only light harassing raids were made on three of the large sites before the British War Cabinet on 29th November 1943 ordered bombing of the chain of ski sites and the creation of a central Intelligence agency to devise and direct positive counter-measures.

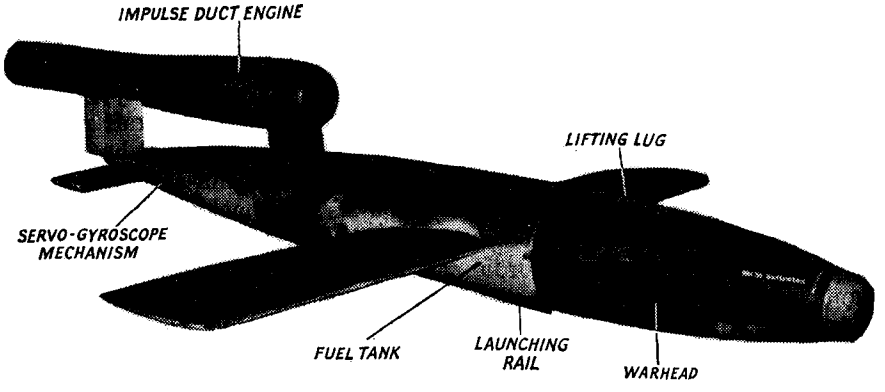
Once begun in earnest in December 1943, bombing attacks against the "secret weapon" firing sites in northern France were prosecuted with vigour, and in the next six months some 25,150 sorties and 36,200 tons of bombs were expended by the American Eighth Air Force, A.E.A.F., and R.A.F. Bomber Command. The campaign cost 150 aircraft and 770 aircrew members, but 103 out of the then known total of 140 ski sites had been demolished by the end of May 1944. Even after the first three months of attack the Germans had been forced to recast their plans and, while ostensibly persevering with the ski sites, an alternative system of simple prefabricated launching-ramps, easy to conceal and presenting far more difficult targets to bombing attack, were prepared throughout northern France. These modified sites were left unmanned and unstocked until Hitler should order the opening of the long-delayed offensive. Allied air power, although at considerable cost, had so affected the enemy time-table that the rocket menace, instead of being a means to prevent the Allied invasion of France, became a stand-by retaliation weapon for use only after the invasion should occur.

When the first flying-bomb operations opened on the night of 12th-13th June 1944, six days after the beginning of the invasion they had been designed to prevent, they did so inauspiciously. Not one of the elaborate ski sites was able to launch a single weapon. The modified sites were hastily occupied, but, because of lack of equipment or non-arrival of special fuel, only seven out of 64 sites were ready to fire. The German Commander-in-Chief West, who called for an impressive demonstration of strength against England in order to divert Allied air power from the beach-head area, expected that salvos of 64 flying bombs would arrive in London together at 11 p.m. and again at 4 a.m., at which times bomber aircraft of *Fliegerkorps IX* were also to attack the city. In fact the sites were forced to fire independently, only 10 bombs in all leaving their

[5] On the other hand there were theorists who considered that the sites were intended to launch enormous tanks of poison gas on London: biological warfare and atomic energy (a field in which the Germans were known to be advanced) were also connected in various ways with these sites by theorists.

ramps of which four crossed the English coast. Three of these fell in open country and did no damage, the fourth demolished a railway bridge in the East End of London and killed six people. The planned intervention of the *Luftwaffe* was a fiasco as only one aircraft appeared over London—and was promptly shot down.

As a result of this false start the Germans lost the value of surprise. The flying bomb was clearly not a hoax, but its capabilities hardly seemed to justify the fears previously held. The Chiefs of Staff met on



The V-1

13th June and the War Cabinet, as mentioned earlier, decided that attacks should be made on V-weapon supply and launching sites "whenever effort . . . can be spared without prejudicing in any way the urgent needs of the Battle of France". This decision led to little action, for in the next few days, when no further flying bombs were launched, only one small air strike was made to drop 100 tons on a suspected supply depot near Calais.

British optimism immediately after the first attack, however, was as illusory as German optimism before it. *Flak Regiment 155(W)* quickly stocked the modified sites once the previous extravagant security rules were relaxed after the first firing. Equipment on the sites was brought to readiness and firing drills perfected. On the night of 15th June, 55 sites were able to dispatch nearly 250 missiles, of which 73 landed in London. The resultant craters showed that the weapons had a very effective shallow blast with a high degree of damage to property. It was then recognised that the Germans intended to use the new weapon to the fullest possible extent as an instrument of terror against the civilian population. This time the pendulum of Allied air policy swung decisively, and it was now that Eisenhower on 16th June instructed Tedder in unequivocal terms that flying-bomb targets were to "take first priority over everything except the urgent requirements of the battle; this priority to obtain until we can be certain that we have definitely gotten the

upper hand . . .". The diversion of bombing aircraft to V-weapon targets was to be a very real drain on resources.

Purely defensive measures against flying bombs were immediately put into action on 17th June. The Air Defence of Great Britain Command assumed charge of the fighter aircraft, anti-aircraft guns, searchlights and balloons already stationed in southern England. Additional guns and balloons were brought in and extra fighter squadrons diverted from other duties and transferred to No. 11 Group. As mentioned, the redeployment of aircraft included Tempests and Mustangs allocated to Second T.A.F. and also night fighters; this represented a considerable sacrifice by the forces operating over the battlefront.

In the early stages of the German bombardment which began on 16th June and was to continue day and night until the end of September a good deal of confusion developed among the defenders. Aircraft pursued flying bombs into the gun belt and were themselves attacked by gunfire. A general nervous state developed among pilots and anti-aircraft gunners alike so that, to avoid errors, many chances of attacking flying bombs were lost. It was soon found necessary for A.D.G.B. to define three separate lines of action according to the prevailing weather: one gave complete freedom to fighters and forbade guns to fire; another gave freedom of action to guns and restricted aircraft patrols to the seaward areas only; the third laid down strict rules of procedure for weather when both guns and aircraft could profitably be employed in the landward zone.

Before the end of June, *Flak Regiment 155(W)* succeeded in launching 1,579 flying bombs which cleared the French coast on their way to London. Of these 1,421 reached England and 724 fell in the Greater London area. They had an effect much greater than the military one. At first civilians and servicemen alike found it difficult to adjust themselves to the intermittent and random attack by robots which flamed noisily across the sky and then plunged to earth as the engine was cut off by predetermined setting or remote control. The frequent day and night alarms were more difficult to bear than even the heaviest individual bombing raids of the blitz. Nervous strain on an overworked people led to some mild hysteria and some absenteeism in industry during these early stages. This factor, far more than the material damage or actual casualties, accounts for the extent of measures taken to defeat the menace.

During the first week of the campaign anti-aircraft guns claimed the highest number of successes against flying bombs, destroying 43 as against 15 by fighters and none by balloons. During the next fortnight, when pilots had the opportunity of studying the characteristics and performance of the enemy weapon, there was a distinct change, and by the end of June fighters had destroyed 410, guns 169 and the balloon barrage 13.

From the beginning of the flying-bomb attacks No. 456 Squadron R.A.A.F., which was still stationed at Ford in Sussex, flew nightly patrols in the vicinity of the French coast. The exceptionally bad weather during

June gave very little chance for successful night attacks, and although on several nights Australian pilots attempted to make interceptions they failed to do so. The only definite action came on 24th-25th June when Flight Lieutenant Houston made three diving attacks on different targets near Beachy Head with inconclusive results.

The Australians quickly appreciated that it was no easy task to intercept and shoot down these targets moving at 350 miles an hour either in the short space across the English Channel before the gun barrage began or between the gun belt and the balloon barrage on the southern outskirts of London. The objects were clearly visible because of the flame of their jet engines, but this did not immediately enable a pilot to estimate range or the appropriate cutting-off vector. The difficulty was threefold: first it was necessary for the fighter to turn in behind the target and settle on its course; secondly to overtake it or maintain close contact before it left the fighters' zone; thirdly it must be shot down at a range not less than about 900 feet. Ground control and searchlight aids were of some help in estimating range and bearing but any slight misjudgment inevitably resulted in an opportunity lost.

The Mosquitos of No. 456 were not fast enough to overtake the missiles in straight and level flight, so it was necessary to gather speed by diving from a height well above the target. Only the most skilful pilots were able to coordinate accurately the essential loss in height and the turn-in for a perfect interception. Finally the lethal nature of the target required that it be detonated at a sufficiently safe distance from the attacker. This meant in practice that a much smaller target had to be hit from a longer range than ever would happen in a normal attack on a conventional aircraft—and all this in a much briefer space of time. When the cloud base was low the work of the night fighters was almost entirely frustrated. The pilots of No. 456 were disappointed by their lack of success during June, but crews rapidly learned to improve their technique; for the moment the problems posed by the flying bomb became almost a personal challenge.

Among the R.A.F. squadrons of A.D.G.B. committed to daytime defence against the FZG76 some 28 Australians were active during June 1944. Their Spitfires, Tempests and Typhoons had the extra speed and manoeuvrability to make interception relatively easy and daytime operations also helped range estimation so that their task was far less onerous than was the night fighters. Nevertheless "anti-diver"[6] patrols were often very dull for the fighters, which were forced to remain in the air at all times of the day. This was admittedly a prodigal use of aircraft but was the only feasible way of having fighters in position to meet fleeting attacks which might come at any time. Once a salvo of flying bombs was launched there followed an exceedingly dramatic few minutes which partly offset the monotony of inaction. The fighters off the French coast would report divers to control and turn in to attack. It frequently happened,

[6] Diver was the code name given to the FZG76.

in spite of very capable ground control distributing targets, that pilots would find themselves "queueing up" on the same bomb. Some of the bombs (145 in June 1944) might be shot down over the sea; those that were missed ran into a most intense concentration of anti-aircraft fire. More would be destroyed in the gun belt (169 in June) and the remainder would pass into the landward fighter zone, where again ground control greatly aided pilots in matters of range estimation and interception leading to further losses (265 in June). Those that escaped the inner fighter patrol still had to get through the closely placed belt of barrage balloons.

All the 28 Australians had some opportunity to attack in these crowded but short interludes and 16 pilots claimed one or more victories in the first fortnight of the campaign. The first success by an Australian was on 19th June 1944 by Warrant Officer Adcock[7] in a Tempest of No. 3 Squadron R.A.F. He shot down another next day. Flight Sergeants Mackerras[8] and Bailey[9] each destroyed three between 23rd and 27th June; and Warrant Officer Torpy[1] claimed one on the 26th and another on the 27th—a total of 10 bombs within 8 days for the four Australians. This served to emphasise the superior speed and handling qualities of the Tempest aircraft but it also underlined the degree of diversion of such aircraft from the front line.

Of other attacks by Australians during the early stages of the defensive patrols the most notable was made on 23rd June when Flying Officer Collier[2] employed a new method of dealing with the flying bombs. He had fired without success at one target and exhausted his ammunition. He then flew alongside so that his wing lay under that of the robot and banked steeply, thus forcing up the wing of the flying bomb so violently that it upset the automatic controls and the bomb spiralled down out of control into a field near East Grinstead.[3]

While the A.D.G.B. defences were accounting at considerable cost for some 55 per cent of flying bombs launched by the enemy, the Allied air commanders began an intensified bombing attack against "Noball" targets in France[4] in an attempt to keep launchings as low as possible. Before D-day, attacks had been largely the responsibility of the medium and fighter-bombers of A.E.A.F. with some assistance from the Eighth Air Force. Now the heavy bombers, and in particular R.A.F. Bomber

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[7] F-O R. S. Adcock, 411846; 3 Sqn RAF. Bank clerk; of Mosman, NSW; b. Chatswood, NSW, 17 Jul 1918.

[8] F-Sgt D. J. Mackerras, 422599; 3 Sqn RAF. Engineering draftsman; of Pymble, NSW; b. Camperdown, Vic, 7 Nov 1920. Killed in action 6 Aug 1944.

[9] F-O H. J. Bailey, 417290; 3 Sqn RAF. Student; of Booborowie, SA; b. Adelaide, 11 Jan 1924.

[1] F-O J. L. R. Torpy, 420306; 3 Sqn RAF. Grocer's assistant; of Marrickville, NSW; b. Young, NSW, 10 Jun 1923.

[2] F-O K. R. Collier, 422424; 91 Sqn RAF. Meat inspector; of Balmain, NSW; b. Glebe, NSW, 5 Nov 1920. Killed in action 5 Dec 1944.

[3] The V-1 was controlled by servo-gyroscopes which became locked in one desired position as soon as the missile was on its predestined course, and remained locked until the last moments of calculated flight when the bomb could be set to glide ahead or turn in any desired direction. During flight the automatic controls could compensate for small changes in conditions (air pockets, wind changes or varying barometric pressure) but any serious disturbance of its flying altitude would send it spinning out of control.

[4] The code name for all anti V-weapon operations was CROSSBOW, that for targets, e.g. ski sites and supply depots, was "Noball".

Command, were allotted the major part of the task. This diversion of heavy bombers was considerable and within a fortnight Bomber Command had flown 4,000 sorties and the Eighth Air Force over 1,800 sorties to drop over 20,000 tons of explosive against supply and launching sites, while A.E.A.F. bombers added more than 1,000 tons to the total. The weight of preventive bombing during this period was thus 30 times that actually delivered by the flying bombs against London.

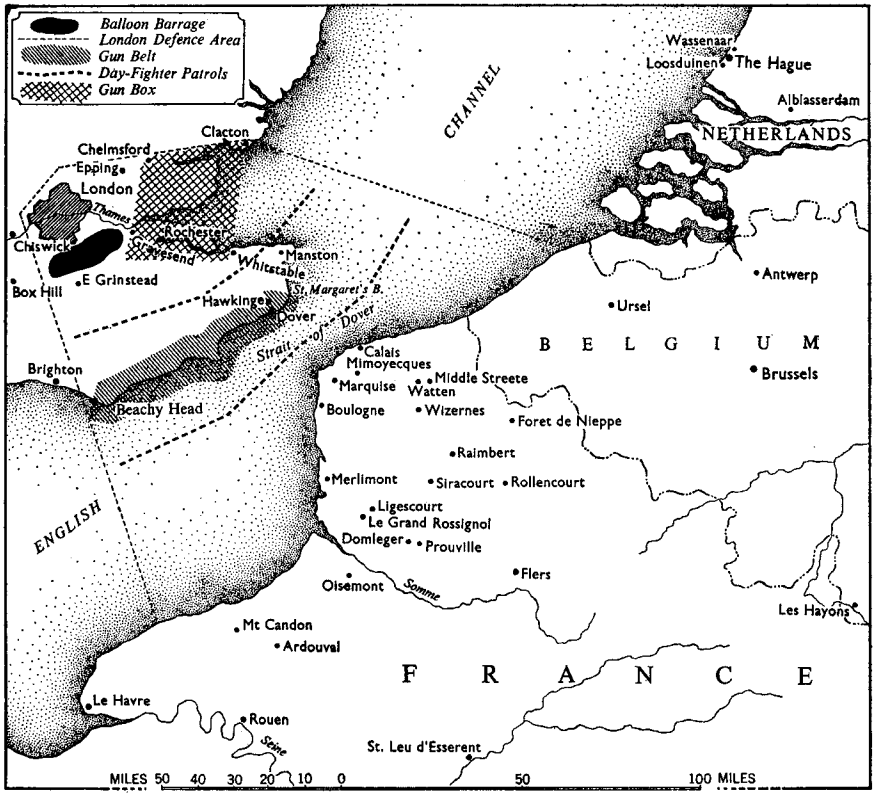
The value of this holocaust of bombs was open to doubt as target priorities appeared to be large sites, supply sites, ski sites and modified sites in that order. As both the large sites and ski sites had already lost their original significance in the German plan, and as modified sites were extremely difficult to find and attack, and moreover could, even if demolished, quickly be restored, the campaign was more one of intention than of enduring effect. The Allies, however, lacked sufficient knowledge of enemy dispositions to prepare any more satisfactory alternative.

Once committed to what was an unpopular task (Harris joined Doolittle in advocating a mass attack against Berlin instead of against Noball targets) Bomber Command worked energetically. It was decided that attacks should be made by day as well as by night to take advantage of any good spells in the weather, which was unusually bad. By this expedient a sustained offensive was maintained and, before the end of June, Bomber Command had made 43 separate attacks: 13 attacks against 7 supply sites, 11 attacks on 4 large sites and 19 attacks against individual launching sites. Australian squadrons operated against 11 targets in this period, beginning on 16th-17th June when No. 460 dispatched 20 Lancasters in a force of 108 which struck at Domleger. The attack was made through a complete overcast with the help of red target-indicator bombs cascading in cloud, and the Australians, although they bombed from 14,000 feet, found it almost impossible to assess any precise results. Both this force, and others sent the same night to attack launching sites, reported slight enemy night-fighter activity but there was little or no anti-aircraft fire.

The same conditions prevailed on the night of the 17th-18th when 12 Halifaxes of No. 466 attacked another launching site, but subsequent reconnaissance actually showed that both these attacks were technically satisfactory, as much damage was evident on and around the sites.

The first Australian daylight attack, against Siracourt on 22nd June when 15 Halifaxes of No. 466 led No. 4 Group, was by comparison very disappointing. Fighter cover brought the bombers unmolested to the target and the master bomber first gave instructions for crews to bomb visually, but as early results were poor he then ordered the remainder to aim at target-indicator bombs laid by Squadron Leader W. W. Blessing and other pathfinders of No. 105 Squadron who had accompanied the force. Despite this extra aid the bombing continued to be scattered. Wing Commander Connolly had found both his H2S and Gee equipment unserviceable and was forced to bomb a near-by airfield, while two other crews of No. 466 attacked alternative targets. They were surprised at the

strength of the gun defences, five R.A.A.F. Halifaxes being hit during bombing and another while passing over Boulogne; Squadron Leader McMullan[5] and his crew were shot down and killed. Much greater apparent success was gained on 23rd-24th June when, in good weather, No. 466 participated in a trouble-free attack against a supply site near Oisemont, a target already attacked twice previously.



On the night of 24th-25th June, although No. 466 had a quiet trip to Le Grand Rossignol, Nos. 463 and 467 had an unhappy introduction to Noball targets when a force from No. 5 Group was sent against Prouville. Between them the two R.A.A.F. units supplied 34 Lancasters and eight other Australian pilots flew in the total force of 112 aircraft. At first all augured well because the weather was clear with only a slight haze and the initial illumination and marking was done punctually. Before the attack got under way, however, intense enemy searchlight activity in cooperation with guns and fighters threatened to disrupt the work

[5] Sqn Ldr J. F. McMullan, 406660; 466 Sqn. Clerk; of East Fremantle, WA; b. Cottesloe, WA, 22 Jun 1921. Killed in action 22 Jun 1944.

of the pathfinder "backers-up", so the master bomber ordered the main force to refrain from bombing and to circle the target until a deliberate attack could begin.

The 20-minutes delay caused by this zealous attempt to make the best possible attack gave enemy fighters and guns ample opportunity to take heavy toll of the bombers, 13 being destroyed. Wing Commander Donaldson who had taken over command of No. 463 as recently as 18th June was shot down by gunfire and two other Lancasters of his squadron captained by Pilot Officers Tilbrook[6] and Martin[7] failed to return. No. 467 also lost two crews while the Lancaster captained by Pilot Officer Johns[8] was so heavily damaged by cannon fire from a night fighter that the rear turret was almost completely severed and the gunner blown out without his parachute. The aft end of the aircraft was set on fire and with the inter-communication set out of action the mid-upper gunner baled out. Nevertheless the fire was brought under control and, although the badly-damaged Lancaster was difficult to control and was virtually defenceless, Johns insisted on continuing his journey and bombed the target. Flight Lieutenant Forrest[9] of No. 61 Squadron also failed to return from this raid while several other Australians had desperate encounters with night fighters. Flight Lieutenant Baker[1] of No. 97 Squadron for example, had completed his first run to drop a primary blind marker and was circling to lay additional flares when he was coned in searchlights and attacked three times by single Ju-88's, two of which were claimed to have been destroyed as they were seen falling blazing to earth, and the third was driven off. The Australians returned somewhat shaken from this raid and critical of the manner in which it had been handled. Their losses were less bearable because of general pessimism as to the accuracy of the attack, fears which were only too well founded, as reconnaissance aircraft later reported only craters well clear of the target.

No. 460 had made its first daylight attack on a Noball target on 24th June when 19 Australian Lancasters were in a force of 107 which bombed a launching site at Les Hayons in clear weather and against weak opposition which permitted crews to attack visually from as low as 10,000 feet.

For the remainder of June the R.A.A.F. squadrons flew only daylight attacks against Noball targets, although, as had become normal practice in view of the small nature of the sites, pathfinders accompanied each force to drop target indicators in case visual recognition and bombing

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[6] P-O J. M. Tilbrook, 417248; 463 Sqn. Postal clerk; of Terowie, SA; b. Watervale, SA, 3 Jun 1923. Killed in action 25 Jun 1944.

[7] P-O J. F. Martin, 16203; 463 Sqn. Gold refiner; of Mt Lawley, WA; b. Fremantle, WA, 14 Dec 1920. Killed in action 25 Jun 1944.

[8] F-Lt S. Johns, DFC, 425021; 467 Sqn. Grazier; of Leyburn, Qld; b. Walcha, NSW, 31 Mar 1913.

[9] F-Lt J. A. Forrest, 415635; 61 Sqn RAF. Farm labourer; of Forest Park, WA; b. Bunbury, WA, 15 Dec 1922. Killed in action 25 Jun 1944.

[1] F-Lt G. F. Baker, DFC, 412356. 467 and 463 Sqns, 97 Sqn RAF. Electrical fitter; of Cremorne, NSW; b. Sydney, 4 Dec 1918.

were not feasible. These daylight attacks were welcomed because, although on occasion enemy gun defences were more troublesome than at night, the provision of fighter escort gave everyone except stragglers almost complete immunity from enemy aircraft. Australians with Nos. 127 and 165 Squadrons frequently flew with these fighter escorts, Flight Lieutenants McNally[2] and Schofield[3] and Flying Officer Asboe[4] each making several trips and successfully warding off somewhat half-hearted enemy attempts to break through to the gaggle of bombers. Bomber Command did not attempt to emulate the tight box formations of normal daylight bombing technique and adhered more or less to the loose stream concentrated as much as possible in three planes which characterised their night operations; responsibility for bombing still rested with the individual bomb aimers so that, on the whole, bombing compared favourably with the carpets of bombs dropped by the American Eighth Air Force on a signal from a lead bombardier. Thus on 25th June, when No. 1 Group attacked Ligescourt, crews of No. 460 had the choice of target indicators which straddled the aiming point, but the weather was so good that many preferred to bomb visually and a good concentration of bombing was achieved.

Affairs did not go quite so well on the 27th when No. 466 bombed Marquise-Mimoyecques; as cloud prevented several R.A.A.F. crews from seeing the target indicators, they bombed on H2S, accurate analysis being prevented because of a repeat attack the same night by Lancasters of No. 5 Group. Raids by No. 460 against Siracourt and by Nos. 463 and 467 against another site on the 29th were both well executed, Flight Lieutenant Merrill[5] of No. 463 bringing home from the latter attack an excellent film of bombs bursting directly on the target.[6]

The Boston and Mitchell medium bombers of No. 2 Group Second T.A.F. were also diverted from night harassing duties to attacks against Noball targets. This change of role began on 19th June and accounted for 375 sorties by the end of the month which might otherwise have been applied to the battle of communications. Relatively few Australians were engaged but their experience is typical of the whole series during which one in every three sorties was abortive because of bad weather and few outstanding results were claimed. The biggest effort was made on 20th June when 76 aircraft attacked 5 targets in the morning and another 72 sorties followed in the afternoon. Ten R.A.A.F. pilots flew in the morning and eight during the afternoon raids, five men joining in both attacks, and it was this same little band, of which Flying Officers

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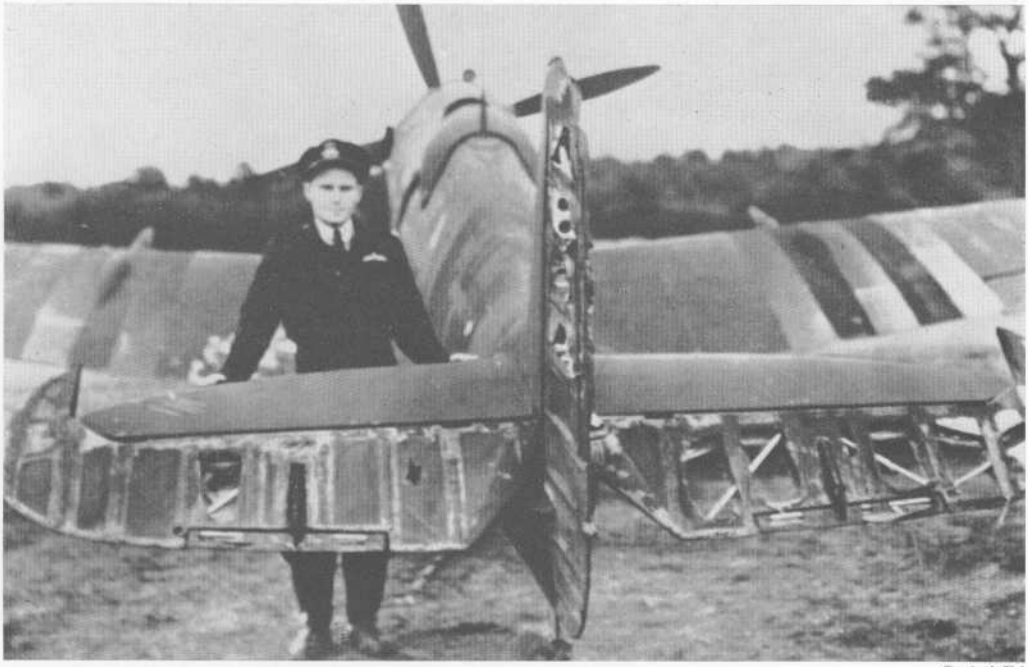
[2] F-Lt D. J. McNally, 404349. 616 Sqn, 1435 Flt and 127 Sqn RAF. Accountant; of Lismore, NSW; b. Sydney, 29 Sep 1915.

[3] F-Lt J. E. Schofield, 401155. 451 Sqn, 127 Sqn RAF. Student; of St Kilda, Vic; b. Bendigo, Vic, 21 Feb 1921.

[4] F-Lt A. K. Asboe, 404889; 127 Sqn RAF. Bank clerk; of Mackay, Qld; b. London, England, 31 Oct 1920.

[5] F-Lt F. L. Merrill, DFC, 416775. 463 Sqn, 242 Sqn RAF. Law clerk; of Port Augusta, SA; b. Port Augusta, 21 Apr 1921.

[6] RAAF pilots in varying numbers up to 14 per cent of each force also joined in raids against 13 targets including Wizernes (twice), Flers, Middle Streete, Mont Candon, Oisemont (twice) and Domleger.



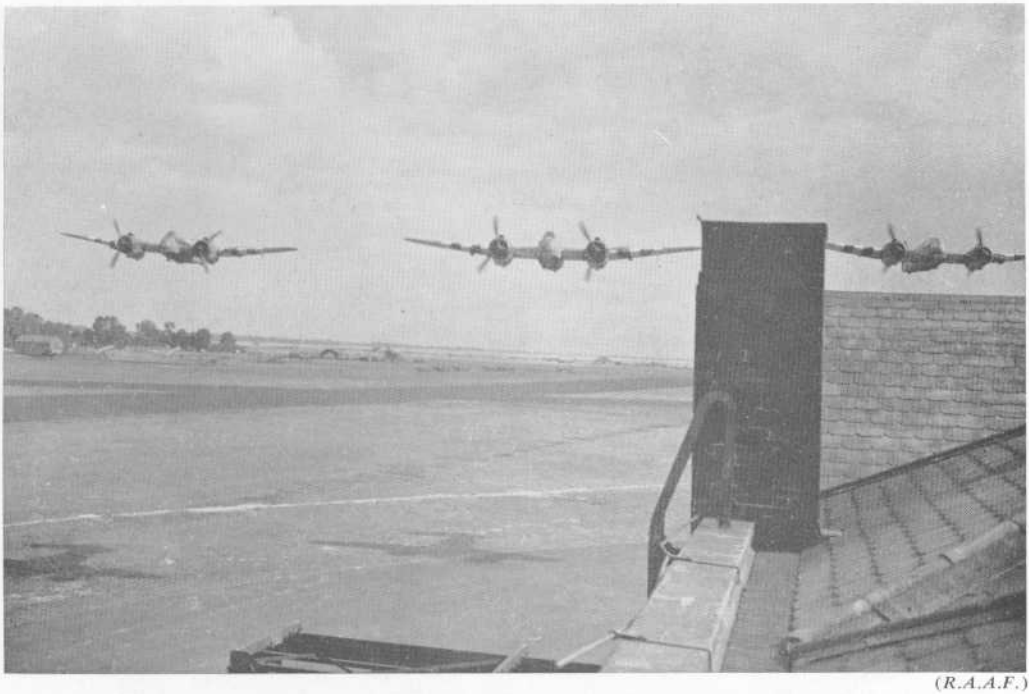
(*R.A.A.F.*)

F-O G. P. Armstrong of No. 165 Squadron R.A.F. showing damage resulting to the tail plane of his Spitfire after destroying a flying bomb at close range on 1st July 1944. He escaped injury and was able to land safely.



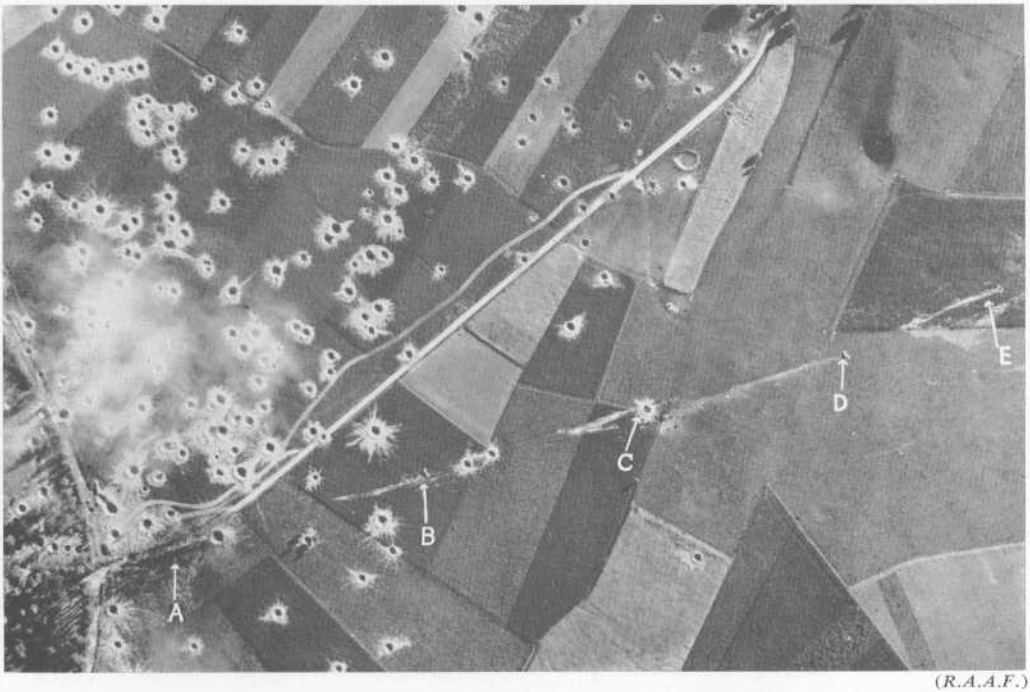
(*R.A.A.F.*)

Allied troops inspecting the flying-bomb site on the Abbeville road near Amiens. The ramp had been last used on 29th August 1944; French Forces of the Interior reported that an average of 10 flying bombs was launched from it each day.



(*R.A.A.F.*)

Beaufighters of No. 455 Squadron returning from an attack on an enemy convoy in August 1944. These aircraft were used extensively by Coastal Command in shipping strikes.



(*R.A.A.F.*)

A flying-bomb site in the Pas de Calais after attacks by Allied aircraft. "A" shows the launching ramp, "B", "C", "D" and "E" indicate where flying bombs have crashed on launching. The streaks show where they have slid along the ground.

Stevenson[7] and Grellman[8] of No. 98, Warrant Officer Seymour[9] and Flying Officer Kennard[1] of No. 180 and Warrant Officer Murphy[2] of No. 88 Squadron were most active, which bore the brunt of Australian participation in medium-bomber attacks of all kinds at this time. The relatively small size of formations employed against individual sites prevented decisive results and the most noteworthy attacks came on 24th and 25th June with six attacks against four *châteaux* thought to shelter various headquarters of the enemy flying-bomb organisation, but even on these occasions results were patchy.

American air forces, which had much experience of attacking the ski sites before June 1944, also joined in the new offensive, although they were so heavily committed in Normandy that the Eighth Air Force did not begin attacks until the 19th and the Ninth Air Force not until the 23rd. Thereafter approximately 2,000 heavy and 1,500 medium sorties were devoted to Noball targets before the end of the month.[3] The raids of the Eighth Air Force were seldom conclusive for, although 91 separate attacks were made, only in rare instances were more than 20 aircraft employed, and from the height at which these flew it was extremely difficult to saturate a small target. The Ninth Air Force, with its experience and its different bombing technique, claimed the elimination of six launching sites. But the sum total of the Allied campaign meant that at most 19 launching sites had been eliminated and others damaged in various degrees, although German testimony is emphatic that the bombing of these sites made little difference to the V-1 offensive. To achieve this negligible result 6,000 heavy-bomber and 2,000 medium-bomber sorties had been diverted in two weeks from attacks on German industry or from tactical cooperation near the battlefield.

While approximately 700 tons of explosive fell on London and another 600 were scattered widely over southern England, the Allies employed more than 20,000 tons of bombs in the attempt to frustrate the campaign. In quantities of fuel, material and manpower employed, the Allies greatly surpassed the enemy, and, as much of this effort was wasted, it was fortunate that even this colossal expenditure, though it meant a potential loss of offensive power, did not in fact prevent the Allied air forces from meeting all calls made upon them. Although up to 30th June the Noball campaign had been a failure this does not detract in any way from the manner in which the actual raids took place. For Bomber Command fortunately casualties were light (38 aircraft or less than 1 per cent of

[7] F-O D. B. Stevenson, 405888; 98 Sqn RAF. Clerk; of Rockhampton, Qld; b. Yeppoon, Qld, 7 Jan 1922.

[8] F-Lt G. F. E. Grellman, 421268. 98 and 288 Sqns RAF. Bank clerk; of West Wyalong, NSW; b. West Wyalong, 9 Feb 1920.

[9] W-O S. S. Seymour, 416620; 180 Sqn RAF. Clerk; of College Park, SA; b. Adelaide, 23 Oct 1921.

[1] F-O R. M. Kennard, 422080; 180 Sqn RAF. Student; of Canberra; b. Malvern, Vic, 15 Jul 1923. Killed in action 21 Mar 1945.

[2] W-O F. D. Murphy, 408608; 88 Sqn RAF. Caterer; of Malvern, Vic; b. Marsden Park, NSW, 12 Apr 1915.

[3] These figures are variously computed. Thus for the Eighth Air Force Leigh-Mallory gives 1,835, the AEAF Summary 1,933 and Craven and Cate 2,149. There are similar discrepancies for the Ninth Air Force but the general level of participation is clear.

sorties) and the mixture of day and night raids had some training value for aircrew and planners alike.

The main flying-bomb offensive conducted from sites in the Pas de Calais continued with varying intensity until 1st September 1944, when the launching points had either been captured or were imminently threatened by the Allied army. On the German side the sheer propaganda value among troops and civilians alike was enormous. Late in June Hitler promised that many more launching sites would be prepared and fighter protection and better transport facilities given to the existing ones; a second regiment (*Flak Regiment 255(W)*) was raised during July to augment the launching force of *Flak Regiment 155(W)*. On the Allied side there was some dissatisfaction both with the defensive and offensive arrangements to combat the V-1, but in the absence of other means Eisenhower reiterated on 29th June that bombing of V-weapon launching sites should continue to receive top priority. Thus during July and August the Allies expended a very large air effort against the French sites, although at the same time they began a belated strategic bombardment of V-weapon industrial plants in Germany. The brunt of the task lay on Bomber Command which made 179 attacks in 53 days during the two months. The forces engaged on these missions varied from under 50 aircraft to over 400 according to the nature of the objective. This represented a huge total of well over 10,000 individual aircraft sorties and a rain of 43,666 tons of bombs against Noball targets. To this major contribution must be added 6,000 tons dropped by the American Eighth Air Force in 2,270 sorties and 419 tons dropped in 246 sorties by aircraft of A.E.A.F.

R.A.A.F. heavy-bomber squadrons took part in 36 operations against V-weapon targets during July and August 1944. Of 643 aircraft dispatched, 585 were successful in finding their allotted targets and dropped 2,961 tons of bombs in return for the moderate loss of 9 aircraft. Many more individual Australians flew with other squadrons on these and other raids in the series, but their experiences and degree of success were almost identical with those of the *Article XV* crews. Australian fighter pilots often assisted in escort duties during the daylight raids which comprised about two-thirds of the total effort.

Attacks against individual modified launching sites (the ski sites had been dropped from the target priority list at the end of June) continued throughout July with varying results. These small targets were very hard to find by night in bad weather even when employing Oboe techniques. Thus only 3 of 12 Halifaxes of No. 466 sent against the Ardouval launching site on 20th-21st July could find their objective. Ardouval was, however, badly damaged by a daylight strike by Lancasters (including No. 460) on 25th July. After July this type of target was reserved mainly for the Eighth Air Force, while Bomber Command increased its own activity against supply depots and other large fixed targets. The campaign against modified launching sites had limited any expansion rather than diminished the number in use by the Germans.

To air planners and aircrew alike attacks against supply depots offered greater hopes of success. Both No. 463 and No. 467 were sent out in force on 4th-5th July when 227 Lancasters attacked St Leu d'Esserent. Here, as Intelligence reports correctly indicated, limestone caverns and quarries were being used as stores for the FZG76's. The attack plan had as its object the collapse of the roofs of the caverns, estimated to be of an average thickness of 25 feet; a subsidiary aim was disruption of road and rail communications between the entrance to the caves and the near-by River Oise. In favourable weather, with only moderate flak but persistent night-fighter opposition, the Australians all reported good bombing with a tendency for the weight of the attack to creep to the north-east of the target during the later stages. No fewer than seven crews of No. 463 submitted target photographs showing the allotted aiming point and all were enthusiastic about the high standard of marking and the way in which Squadron Leader Locke of No. 97, the emergency master bomber, had controlled the operation.

Nevertheless although two aircraft of No. 463 were specially briefed to attack gun defences with fragmentation bombs, which led to the silencing of one heavy battery and diminution in fire from another, 13 Lancasters were lost and many more were damaged by night fighters. Wing Commander Brill, the commanding officer of No. 467, was attacked by three fighters immediately after he had dropped his bombs from 14,000 feet, but he skilfully evaded these attacks and damage to his Lancaster was confined to bullet holes in the fuselage. Flying Officer Molinas[4] of No. 619 was less fortunate as his aircraft was attacked and severely damaged while he was on a careful bombing run. Molinas was wounded and many of his flying-control instruments shattered, but he manoeuvred his aircraft so well that his gunners caught the attacking aircraft in a withering fire on its second approach and it was seen to turn over on its back and dive steeply out of control. He then continued with his bombing run and flew safely back to base.

Almost immediately after the main attack 17 Lancasters of No. 617 Squadron reached the target, each carrying a 12,000-lb Tallboy bomb, to attack the mouths of the tunnels connecting the caves. Eleven of these, including two piloted by Flying Officers Kell and Lee, dropped their bombs accurately on special target indicators provided for this phase of the operation.

Intelligence reports indicated that this attack on St Leu succeeded in blocking all approaches to the caves and that a large quantity of earth above the caves had fallen into them. It was also known that the Germans were making tremendous efforts to repair this damage, and a similar main force of 228 Lancasters attacked again on 7th-8th July. There was fairly heavy cloud over the target at 18,000 feet so the Australians of Nos. 463 and 467 came below this height to attack and again reported good results. Enemy ground gunfire was far more evident than on the first occa-

[4] F-O F. F. Molinas, DFC, 425454; 619 Sqn RAF. Truck driver; of Mount Ossa, Qld; b. Barcelona, Spain, 11 Dec 1920. Killed in action 19 Jul 1944.

sion, and, although a "Mandrel"[5] screen was in operation to confuse enemy night fighters, the Germans brought up reinforcements from the Low Countries and 31 Lancasters were shot down, a disappointingly high percentage for an attack on northern France but one which clearly showed the importance in German eyes of protecting St Leu d'Esserent. Daylight reconnaissance later showed large new craters over the entrances to the three main tunnels. Road and rail approaches had been blocked and appeared to be beyond immediate repair. In addition the river banks had been badly cratered which caused flooding.

For 10 days after this second attack on St Leu the daily average of flying-bomb attacks fell from about 100 to less than 70. Great hopes were felt that this was a direct reflection of supply difficulties imposed by the raid, but this was only partly so because, although 300 flying bombs had been buried beyond hope of recovery or repair, the fall in launchings immediately after this attack was governed also by a spell of very fine weather under which conditions the Germans limited firings, preferring to make maximum efforts in bad weather when Allied defences were at a disadvantage. Nor could it be said that St Leu d'Esserent had been erased as a target. On 5th August a daylight raid was made by 456 Lancasters, one of the largest forces sent against an individual V-weapon target. The raid was uneventful for Nos. 463 and 467 Squadrons and the 2,200 tons of bombs dropped again cratered the area so thoroughly that the working capacity of the depot was severely reduced.

A supply depot near Oisemont was attacked by Halifaxes of No. 466 on 1st July and by Lancasters of No. 460 the next day. One or more of the four Australian heavy-bomber squadrons also joined on various dates in attacks against other suspected supply centres, including Foret de Nieppe, which had five attacks between 28th July and 6th August. Contemporary appreciations, substantiated by evidence available after the war, estimated that the result of all these attacks was that the German supply system was seriously upset thus preventing operations to the full capacity of the available launching sites. German fire could be damped down but it could not be extinguished by these means. Few of these missions were opposed as strongly as the second raid on St Leu, and, although individual combats did occur and there were many instances of exceptionally fine airmanship in adversity during these raids, the Australians quickly came to regard attacks against V-weapon depots in France as routine trips. Good crews attempted constantly to improve their technique in attack, but even a successful attack lacked some of the personal satisfaction inherent on raids against Germany.

With the realisation that bomb attacks on launching sites were merely harassing operations, and attacks on supply depots largely delaying measures, there was an increasing demand that the V-weapon menace should be attacked at its source—the factories and research stations in

[5] An airborne radar device used to jam enemy early-warning and ground-to-air communication with fighters. After 16th-17th June 1944 it was employed on most major night-bombing operations. The first recorded application of the Mandrel screen was on 6th June 1944 when it was used to cover the Allied airborne landings in France.

Germany. Accordingly the American Eighth Air Force made three attacks against Peenemunde and seven other attacks against five industrial targets in Germany during late July and August 1944. Bomber Command contribution to this phase of the campaign was confined to two raids on the Opel factories at Russelsheim, near Mainz, which had been identified as a main assembly point for the FZG76.

The force assembled for the first raid on Russelsheim on 12th-13th August was composed of 287 Halifaxes and Lancasters drawn from five separate groups, the Australian contribution being 17 Lancasters from No. 463, 17 from No. 467 and 22 aircraft with R.A.A.F. captains spread among the other squadrons. There was little cloud and the main bomber stream arrived to find that ground markers had been laid on time by the pathfinders and were both plentiful and well grouped. Moderate heavy ground defences could not spoil the rhythm of attack and German fighters appeared in force only towards the end of the operation, being particularly persistent in their attacks as the gaggle of bombers streamed homewards. Despite these favourable bombing conditions only a dispersed attack developed, although some heavy explosions were reported and many fires seen.

Australian crews gave very conflicting reports at their debriefing. Some thought that bombing was concentrated, others believed it was scattered; many stated that fires were of no great magnitude, but some said that they covered the whole area. Subsequent photographs showed that there was damage only in the south-west area of the huge works and was confined mainly to storage, loading and dispatch sections; residential property to the south-east of the factory had suffered considerably and there was evidence of fires in the surrounding woods. The bomb-load expended had been some 510 tons of high explosive and 450 tons of incendiary bombs, so that as a whole the raid could not be described as having achieved great success. For this moderate result Bomber Command lost 20 aircraft including one from No. 467 and 3 piloted by Australians of Nos. 50, 102 and 622 Squadrons.

The second attack on 25th-26th August was on a larger scale and was mounted by 412 aircraft from Nos. 1, 3 and 6 (R.C.A.F.) Groups. That night No. 5 Group operated against Darmstadt in Germany while No. 4 Group attacked French targets, but there was a strong German fighter reaction to the Russelsheim raid and the 18 crews of No. 460 and 25 R.A.A.F. captains of other squadrons reported brisk actions both on the outward and homeward journeys. Fifteen aircraft were lost from the entire force, this being partially balanced by claims of two FW-190's and one Ju-88 destroyed and three Me-110's damaged. Australians with No. 100 Squadron had to sustain particularly heavy attacks, two aircraft being damaged and a third shot down. Flying Officer Twyford[6] of No. 460 was also attacked after leaving the target and his aircraft sustained severe damage including two holed petrol tanks. There was insufficient petrol

[6] F-O N. E. Twyford, DFC, 423269; 460 Sqn. Storeman; of Earlwood, NSW; b. Goulburn, NSW, 10 Dec 1917. Died 29 Oct 1959.

for Twyford to return to base so he flew to the Normandy bridgehead where he had to make a difficult decision whether to bale out or to attempt the dangerous task of landing a crippled aircraft which was leaking petrol. He chose to attempt a landing and, with the lights of an airfield near Caen barely discernible, Twyford skilfully put the Lancaster down without injury to his crew.

This time the effort and the losses incurred were fully justified as the results of the raid appeared to be outstanding. Damage was caused throughout the Opel works and, although a German decoy 10 miles south-west of the target attracted some bombs, and despite the familiar creep of the attack away from target centre in the later stages, practically all major units at Russelsheim were hit. Seriously damaged buildings included three large assembly shops, research laboratories, a drop-forge shop, the main body-building shop and an engine shop. Two labour camps were almost completely burnt out and other residential property was heavily damaged.

While Bomber Command was expending 30 per cent (and the Eighth Air Force over 20 per cent) of its sorties and bomb-load in July and August in an attempt to limit German capacity to launch flying bombs, A.D.G.B. was still faced with the onerous task of dealing with the missiles actually fired. July began badly because in the first week a new record of 820 "buzz bombs"[7] approached the English coast and of these 369 fell in London. There was an obvious need for better control techniques, faster aircraft, and more guns. Three squadrons of Mustangs were withdrawn from Second T.A.F. and proved very successful as their optimum speed was achieved at the height at which the FZG76 flew. Other types of fighters engaged solely in interception patrols were stripped of armour and internal fittings to attain greater speeds. By mid-July 13 single-engined squadrons and 9 Mosquito squadrons were fully committed to the anti-diver role, and indeed the increase in numbers and the growing experience of pilots appeared to show results in the second week of the month when of 535 bombs launched only 177 reached London.

The daily average of explosions in London had dropped to 25 by 15th July but this figure was still considered too high. No further improvement could be seen with existing methods so on 13th July an A.D.G.B. conference decided to concentrate all guns in a new coastal area between St Margaret's Bay and Beachy Head where the efficiency of radar and visual ranging would be greatly enhanced and where, firing to seaward, they could employ special proximity fuse ammunition forbidden them at inland stations. This entailed some restrictions on freedom of action by fighters, but there would be compensating factors in that each defensive arm would know exactly under what conditions it could attack. The great

[7] So called because of their noisy engine as they flamed across the sky. General use of the name denoted a revival in civilian morale. Once the Londoner could laugh and joke about the FZG76 it lost its previous unearthly threat and became merely a nuisance that needed watching and understanding but could be faced. Londoners quickly learnt that while the buzz bomb was still buzzing it would continue on its path. It was only the ones which stopped buzzing which were about to fall and explode.

redeployment was ordered forthwith, the heavy batteries reaching their new positions on 17th July and the light guns on 19th July.

The new system coincided with a heavier rate of night firings by the enemy and the figures for the third week in July of 563 firings and 247 arrivals in London made the defensive effort appear weaker, but there was a most encouraging increase in the rate of success obtained by guns. Once the batteries were bedded into their new locations they took a steady but increasing toll of the buzz bombs. Fighter patrols also continued to operate efficiently in fine weather and were reinforced by the new Meteor jet aircraft on 4th August. By 12th August the combined rate of destruction had reached 78 per cent from all causes, only 101 flying bombs reaching London out of 457 successfully fired during the previous week. The results improved further, and in the week preceding the overrunning by Allied forces of the firing sites in the Pas de Calais only 37 out of 336 missiles reached their target.

Although the major victory was won by gun batteries, air successes were approximately 40 per cent of the total. No. 456 Squadron continued its night patrols over the English Channel but it was not until 9th July that Flight Lieutenant Roediger made the first definite "kill" for the unit. By the end of July the squadron had destroyed 10; 14 more were shot down in August, and in addition pilots often scored strikes on flying bombs but could make no claims as they were not always able at night to observe the final crash of a bomb. Roediger was outstanding for, assisted by his navigator Flight Lieutenant Dobson,[8] he accounted for 9 out of the unit tally of 24 confirmed victories. His brilliant and intrepid airmanship overcame the special difficulties the task presented for the ordinary night-fighter-type Mosquito, which lacked the speed of the Tempests and specially-powered Mosquitos that operated in the landward zone.

Australian fighter pilots dispersed among R.A.F. squadrons had rather more opportunity than the pilots of No. 456. No. 3 (Tempest) Squadron was outstanding with a record of 258 flying bombs destroyed, and, while serving with this unit, Flight Sergeant Bailey and Flight Sergeant Mackerras each accounted for 11 missiles while three other pilots made lesser scores. Collier of No. 91 (Spitfire) Squadron, who had already destroyed 2 bombs during June, claimed another 5 during July while lesser scores by other pilots amounted to an additional 25 flying bombs. These successes were not gained, however, without risk. One crew from No. 456 failed to return from patrol on the night of 12th-13th July, and the very successful Mackerras was killed on 6th August during a patrol near Box Hill. Although the robots had no defensive armament, attacks on them made from too close a range, and any approach to a missile already damaged by fire from other aircraft were dangerous. A typical incident occurred on 1st July when Flying Officer Armstrong[9]

[8] F-Lt R. J. H. Dobson, 413179; 456 Sqn. Schoolteacher; of Kandos, NSW; b. Sydney, 24 Aug 1910.

[9] F-Lt G. P. Armstrong, 404163; 165 Sqn RAF. Bank clerk; of Highgate Hill, Qld; b. Brisbane, 29 Mar 1917.

of No. 165 Squadron fired on a buzz bomb and closed in when his fire appeared to have no effect. When he was only 50 yards away from the missile it exploded, covering his Spitfire with a sooty substance and partly burning away its elevators and rudder. Happily Armstrong was not injured and he managed to land safely.

A minor facet of the main V-1 campaign had been the appearance of bombs approaching from an easterly direction. The first occurrence was during the night of 8th-9th July and it was appreciated that the bomb had been released from bomber-type (probably He-111) aircraft over the North Sea.[1] This made necessary the setting up of a gun box within a quadrilateral of Rochester-Whitstable-Clacton-Chelmsford and an extension of the existing balloon barrage towards Gravesend. Between 8th-9th July and 4th-5th September when the parent aircraft had to withdraw from Dutch bases, 129 flying bombs were identified in the Thames estuary. It is probable that many more were launched but plunged prematurely into the sea. Except that they had caused a diversion of guns and reallocation of night patrols to cover this eastern flank, this subsidiary campaign brought no added hazards, and the figures have been included in the main statistics quoted.

While public attention had been focused on the flying bomb, the threat of rocket attack had not been forgotten. The existence of the A-4 was known but preparation of precise counter-measures was hampered by widely differing Intelligence assessments of its size, range and war-head capabilities. After the Bomber Command raid against Peenemunde in August 1943 the Germans had transferred the work to scattered locations and it was some time before reconnaissance aircraft found the new A-4 proving section at Blizna about 170 miles west of Warsaw. It was not until July 1944 that a fairly reliable picture of the rocket itself had been obtained. During this period of uncertainty the seven large sites in Normandy were regarded as having some connection with the A-4 and, in particular, the giant constructions at Marquise-Mimoyecques, Watten, Siracourt and Wizernes were evaluated as probable firing sites. During the general attack on V-weapon sites more than 7,000 tons of bombs were dropped against these four targets, and in a special campaign at the end of August nearly 3,000 tons were dropped against nine suspected rocket-storage depots, including Raimbert and Rollencourt, which were targets allotted to R.A.A.F. squadrons.

In their advance through Normandy the Allied armies found a number of sites which were obviously intended to launch rockets—but to the dismay of the experts it was found that these were not the large sites[2] but were nothing more than rough concrete slabs let into road surfaces.

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[1] Originally the FZG76 had been designed as an air-launched weapon and indeed the first successful launch at Peenemunde in 1942 was by this method. Lack of aircraft and weight problems had resulted in its final development as a ramp-launched weapon. This reversion to air-launch was a feasible but by no means ideal expedient.

[2] Of the large sites only Watten and Wizernes had any connection with the A-4. Marquise-Mimoyecques was intended to house a fantastic multi-barrelled long-range gun project which never came into operation.

It was then appreciated that the Germans would possess, or could quickly create, similar launching sites in areas still held by them. Armed reconnaissance flights by fighters and fighter-bombers were ordered on 30th August over likely firing areas within 200 miles radius of London but these were discontinued on 4th September in view of the rapid Allied advance into the Pas de Calais and Flanders.

The first week in September was one of unnatural calm and false hopes very similar to the week after the invasion of France. Bombardment by flying bombs had ceased and the dreaded rocket had not yet been seen. British civil defence plans were reduced; the British Chiefs of Staff agreed that all bombing of CROSSBOW targets should cease except for a small effort against airfields from which operated German bomber squadrons employed in air-launching flying-bomb duties; on 7th September a War Cabinet spokesman in a Press release announced that the "Battle of London" was over "except possibly . . . a few last shots". Hard on the heels of this optimistic appraisal A-4 rockets fell and exploded at Chiswick and Epping on the evening of 8th September. Within a week 20 rockets had arrived in England, 10 of them exploding in Greater London.

The nature of the problem could now be gauged. Spectacular as the A-4 was as a scientific achievement it was patently not a weapon of precise accuracy; for all its size it carried a war-head only as large as that of the flying bomb and, partly because of its vertical approach at five times the speed of sound and partly because of fusing difficulties, it resulted in far less blast damage. It gave no warning of approach and thus lacked the eerie menace of the flying bomb; for two months the public in Great Britain were not informed that the campaign had begun, although many wondered at the unusual incidence of "gas main explosions" in London and elsewhere. With this appreciation that the capabilities of the weapon in action had been greatly over-estimated, and with some belated realisation that perhaps too much uncoordinated effort had been devoted to the earlier threat of the flying bomb, it was now decided that only limited and essentially defensive counter-measures should be taken against rocket attack. Moreover, while the success of the airborne descent at Arnhem, which began on 17th September, was in the balance, no rockets fell, and it was hoped that if General Montgomery's drive into Holland should succeed then there would be an end to attacks against England.

The A-4 rocket campaign against England began again immediately after the Allied withdrawal from Arnhem. For a few days Norwich was the target, but then London became once more and remained the prime target. Between September 1944 and 29th March 1945 more than 1,100 A-4 rockets fell in England. At the same time firings of A-4's against continental military targets in Allied hands began and continued throughout the same period as the attack against London. The total fired against continental targets (chiefly Antwerp which received over 85 per cent)

was nearly 1,700—substantially greater than the number against England. The maximum weekly effort came in the first week of January 1945 when 59 rockets fell in England and 80 on the Continent. Against a single target the maximum weekly effort was 107, which was twice attained against continental targets. The greatest recorded daily effort was 26 on 23rd and 26th December 1944, both times against Antwerp.

There was also in mid-September a revival of air-launched flying-bomb attacks against England and the beginning of ramp-launched flying-bomb attacks on the Continent. The air-launch phase against England lasted until 20th January 1945, and during that time approximately 630 bombs approached the coast. There was a last attack against London by long-range flying bombs launched from ramps in Holland between 1st March and 29th March 1945, some 125 landing in England during this period. Continental operations were fairly continuous between October 1944 and March 1945, a total of 6,500 bombs falling inside Allied lines with a peak period of activity in the week ending 26th February 1945 when 586 explosions were recorded.

To meet the new situation of a mixed rocket and flying-bomb offensive was not easy. Heavy bombers were urgently required to attack far more profitable targets in Germany than the component, assembly or storage points for V-weapons, which in any case had largely been transferred underground, as at Niedersachswerfen in the Harz Mountains. Existing techniques made heavy-bomber operations against the simple launching points for A-4 rockets expensive and useless, as new sites could quickly be substituted. No fighter or gun could hope to destroy an A-4 once it was launched. Moreover, continental operations of flying bombs could not be defeated by the expensive standing patrols which had been of such prime importance in the defence of London.

Accordingly heavy bombers were abruptly withdrawn from the CROSSBOW campaign and, except for one small attack by Bomber Command on 17th September, none of the elaborate plans[3] prepared for use when rocket attacks should begin was carried out. There were a few minor Bomber Command raids in later months against airfields from which the He-111 squadrons operated to launch flying bombs but these raids were often incidental to CROSSBOW activities and more directly linked to the general attack on German Air Force facilities. Thus, with the heavy bombers which had expended the majority of previous effort no longer committed, Allied plans to counter the threat of bombardment against England rested principally on fighters and fighter-bombers. In all over 10,000 sorties were made and nearly 2,000 tons of bombs dropped,

[3] On 25th August 1944 the "plan for attack of the German Rocket Organisation when . . . Attacks commence" proposed in addition to existing measures against large sites and storage depots:
(*a*) armed reconnaissance of launching points, rear and forward storage points;
(*b*) air attacks against secondary forward and rear storage depots;
(*c*) air attacks against liquid oxygen plants;
(*d*) destruction of a wide ring of railway bridges;
(*e*) destruction of Franco-Belgian canal locks;
(*f*) air attack on 15 nominated V-weapon factories in Germany and Austria.

principally by fighters controlled by A.D.G.B. in the following types of operation.

(*a*) Fighter and bomber attacks on
  (i) rocket storage and launching areas; H.Q.; billets and offices;
  (ii) liquid oxygen plants;
  (iii) airfields associated with air-launched flying bombs;
  (iv) flying-bomb launching sites;
  (v) communications;
(*b*) armed reconnaissance to identify targets as above;
(*c*) intruder attacks on airfields;
(*d*) defensive patrols against air launchings.

In the offensive counter-measures against German flying-bomb and rocket attacks No. 453 (Spitfire) Squadron was now to provide the main focus of R.A.A.F. interest. This unit, which had moved to France on 25th June, had continued until the end of September a very high degree of activity over the battlefield itself. Firstly near Caen and then from airfields at Beauvais, Douai and near Antwerp, Squadron Leader Smith had led the Australians on daily armed reconnaissances, patrols and sweeps which amounted to over 1,300 sorties during July and August—equivalent to one-third of the previous total since the unit began operations in August 1942. Similar offensive patrols continued in the unfavourable weather of September 1944, the Australians operating for a fortnight from a site near Antwerp which was subjected to intermittent shelling from enemy guns. The end of the month brought a new commanding officer, a new base and a new role. On 28th September Squadron Leader Esau[4] arrived to take over command from Smith; the next day the squadron moved back to England arriving during the afternoon at Coltishall, the unit at the same time being transferred from Second T.A.F. to A.D.G.B. control; on 3rd October eight aircraft carried out an uneventful day ranger patrol over Holland when signs of enemy rocket activity were sought but not found.

Consistently until 20th March 1945 No. 453 was primarily employed in the campaign against guided weapons. Some "Jim Crow" reconnaissance patrols were flown throughout this period to locate enemy coastal-shipping targets off Holland or the Frisian Islands; weather reconnaissance was another regular but minor commitment; and occasional special escorts for bombers, air-sea rescue searches, or, as on 8th March 1945, special patrols against enemy midget submarines were also flown. In all, some 1,000 sorties were flown against rocket targets in Holland, the main enemy area of operations.

Early patrols from Coltishall and Matlaske, near Swannington (to which airfield No. 453 moved on 18th October) held little incident for the Australians and, in the absence of rocket targets, only opportunist attacks against railway trains, road traffic and canal barges resulted. A new phase began in mid-November when the squadron began to rearm with Spitfires Mark XVI, and, on 20th November, No. 453 in company

[4] Sqn Ldr E. A. R. Esau, DFC, 405473. 129 Sqn RAF, 453 Sqn (comd 1944-45). Business manager; of South Brisbane; b. Brisbane, 20 Oct 1918.

with Nos. 229 and 602 Squadrons R.A.F. moved up to Swannington from which a special strike was to be launched. This came on the next day when at 8 a.m. four aircraft led by Esau, and each carrying two 250-lb bombs, took off to attack a rocket-storage dump at Rust-en-Vreugd near The Hague. Three of the pilots successfully pinpointed this well-hidden target, Esau's bombs falling dead on the pinpoint and the others close by. At 10.30 a.m. four more aircraft from No. 453 bombed a rocket storage depot at Huis-Te-Verve and attacked an A-4 rocket which was clearly seen on the ground; at 1.30 p.m. yet another section of four aircraft dive-bombed a depot at Wassenaar-Raaghorst. Similar attacks against all these targets and several others[5] in the same area were repeated eight times before the end of November and continued throughout December when, despite the difficulty of finding small targets in bad weather, 13 strikes were sent out.

A slightly different raid was mounted in greater force on 24th December. Intelligence information from photographs, visual reconnaissance, interrogation of prisoners, and Dutch "Underground Army" sources had built up a fairly reliable picture of A-4 operations and it was assessed that targets other than firing sites merited a greater priority of attack. The firing sites, simple and rugged in themselves, were only vulnerable to discovery and effective attack in the relatively short period when an A-4 was actually on site being prepared for launching. The steady attacks against known storage areas had possibly interrupted but could not entirely prevent firing. The target chosen for the new venture was a block of flats in The Hague area thought to be the headquarters of the A-4 company and thought to house technicians associated with a number of firing sites and depots in the district. The complete Spitfire wing (Nos. 229, 602 and 453 R.A.A.F.) was assigned to the task, and, after the Australians had flown two early morning weather reconnaissances, 12 aircraft from each squadron, each carrying one 500-lb and two 250-lb bombs, set out, refuelled at an airfield in Belgium, and made a determined attack which caused considerable damage to the building, which was then abandoned by the Germans. The Australians lost one aircraft when a Spitfire piloted by Flight Lieutenant Bennett[6] was hit by ground gunfire while over the target, burst into flames and disintegrated. Bennett, however, managed to bale out at about 1,000 feet and was last seen in the forest between the target and the racecourse.

January 1945 was a disappointing month and No. 453 in common with other A.D.G.B. squadrons failed to operate at all on many days and found that nearly one-third of sorties dispatched against the familiar rocket depots in Holland were abortive, even alternative enemy transport targets being hard to find. The one highlight of the month came on the 19th when four Australians made a precision attack on an A-4 site between two hospitals, bombing being followed up by attack with cannon

[5] There were 11 priority supply depot targets listed at this time, of which 7 were in wooded areas around The Hague.

[6] Sqn Ldr W. R. Bennett, DFC, 414189. 286 and 234 Sqns RAF, 453 Sqn. 77 Sqn Korea (comd 1952). Fitter and turner; of Nundah, Qld; b. Durban, South Africa, 11 Jul 1921.

in the face of heavy ground fire. One result of the inability of A.D.G.B. to operate at long range during this month of wintry weather was that Second T.A.F. was brought into the campaign, and from continental bases made an effective raid on 22nd January against a factory at Alblasserdam which was making liquid oxygen. The success of this attack led to a priority rating as a target of a similar factory at Loosduinen and this was attacked four times within six days early in February by Spitfires of A.D.G.B. On 3rd February No. 453 sent 12 aircraft in the first raid and 11 in a follow-up attack. This was a difficult target because it was surrounded on three sides by dwellings and a very high standard of airmanship and bomb aiming would be required if the factory was to be hit without at the same time causing heavy civilian casualties. This difficulty resulted, during the third attack on 8th February, in eight out of twelve pilots of No. 453 refraining from bombing Loosduinen; instead they attacked a supply dump area. The last raid in the series followed on the 9th and this time all the Australians attacked and the factory was assessed as having been neutralised.

Throughout February the woodlands near The Hague were systematically raked with bombs because, even though no conclusive results could be seen, the War Cabinet continually reiterated that these targets should be attacked whenever possible. There was some hope towards the end of February that the enemy was being forced to abandon the Haagsche Bosch as his main supply depot because not only was there a diminution of A-4 firings against London but a new dump and firing sites were located on the Duindicht racecourse. This then became the prime target and the Australians made seven attacks varying in strength from a section of four to squadron strength of 12 aircraft between the 9th and 18th March. Other attacks were also made against the Rust-en-Vreugd, Ockenburg and Wassenaar-Ravelijn depots which increased in importance as Haagsche Bosch waned. On several occasions the Australians bombed a target, and then landed at Ursel to refuel and reload with bombs so as to make a second attack before returning to England.

Meanwhile No. 451 Squadron played a small part in the closing weeks of the anti-rocket campaign. This unit, after two years of defence duties in the Middle East, had taken part in the Allied invasion of southern France in August 1944 only to find that the swift collapse of German forces in France left it with merely routine tasks over the Mediterranean. At the end of November it was decided to transfer the unit to service with A.D.G.B. and it arrived on 2nd December at Hawkinge to re-equip with Spitfires Mark XVI. Only one escort task and one sweep over Germany were attempted during January 1945; and after Squadron Leader Robertson took over command at the end of that month the unit was again moved, first to Manston and finally on 14th February to Matlaske where it joined No. 453. During March some 200 sorties were flown either against specific rocket targets, or on rail interdiction duties in the vicinity of The Hague calculated to affect the supply of A-4 rockets to the actual firing sites.

The land fighting had once more become fluid and Allied forces were surging forward to engulf the lower Rhine area thus forcing the Germans to abandon The Hague and all the existing A-4 firing sites. The fighters were switched after 20th March to a more generalised attack against enemy communications to the rear of the battle. Rocket firings against England fell away and the last A-4 exploded in London. Two days later the last flying bomb launched in the new series, beginning on 3rd March from ramps in Holland, approached the English coast only to be shot down by anti-aircraft fire. It was indeed against this brief resurgence of flying-bomb activity that the Australians made their final contribution to the campaign against guided weapons. On 20th March both Nos. 451 and 453 and on 23rd March No. 451 twice attacked a flying-bomb firing site at Hague-Ypenburg aerodrome. But this was little more than a gesture—the enemy threat was already in its last and most ineffectual phase.

Other Australian fighter pilots both with A.D.G.B. and Second T.A.F. had an occasional part in fighter-bomber activity of the kind described above. Aircrew serving on Boston and Mitchell bomber squadrons of No. 2 Group made a brief contribution when they were thrown into the concerted attempt to bomb the enemy out of Haagsche Bosch. This raid, far heavier than the fighter-bombers could mount, was a failure, many bombs falling on the city area of The Hague, and the medium bombers were then withdrawn abruptly from this task.

While offensive action was directed almost entirely against the A-4, defensive air action continued on a modified scale to destroy flying bombs. The daylight umbrella of single-engined fighters which had proved so successful against the main attack by ramp-launched bombs fired from Normandy was now useless because, in the air-launched phase beginning in mid-September 1944, bombs were launched only at night or in such bad weather that day fighters could not operate. The Tempests and Spitfires were accordingly transferred to battle duties with Second T.A.F. or redeployed against the new rocket menace. It was the Mosquito night fighters which henceforth were the main air palliative, some being sent out over the North Sea to hunt down the carrier aircraft while others patrolled overland to attack flying bombs actually launched and which had penetrated the gun defences.

No. 456 Squadron spent the latter part of September and all October either flying night cover for the Arnhem airborne operation or flying over the stabilised fronts in Belgium and Holland, scoring a solitary success during the night of 6th October when Warrant Officer Mulhall[7] shot down a Ju-188. On 5th November, however, at the same time that it was announced that the dynamic Wing Commander Hampshire had been promoted to group captain and given a post in Transport Command, the Australians learnt that they were to revert to flying-bomb patrols, and were allotted the seaward sector. To Squadron Leader

[7] W-O J. L. Mulhall, 410361; 456 Sqn. Clerk; of Caulfield, Vic; b. Prahran, Vic, 19 Jul 1923. Killed in action 24 Nov 1944.

Howard, the new commanding officer, and his experienced pilots this soon appeared to be a role fraught with considerable hazard and providing a degree of excitement hardly paralleled by any other night-fighter task. The patrols were flown midway between East Anglia and Holland at heights between 3,000 and 4,000 feet. The presence of an enemy was usually first revealed by a flash as a flying bomb left its parent aircraft. The Mosquitos would then dive quickly because the Heinkels, after releasing their missiles, immediately flew back to base at as low an altitude as possible. They operated only on the darkest nights and could fly at speeds so slow that the Mosquito was actually at a disadvantage. In addition to the problem of identification in the dark, the Australians were faced with the need for ceaseless vigilance in instrument flying when perhaps only 150 feet above the sea and with the Mosquito flying as near as possible to its stalling speed in order to give maximum time for an attack.

The first positive success came on 19th November when Flying Officer Arnold was maintaining the first watch of the nightly patrol. An excerpt from his combat report reads:—

> While flying south pilot saw flying bombs to the south. Control gave them 260 degrees and during this leg a flying bomb was seen to start up dead astern. . . . Pilot turned port on reciprocal course, height 3,000 feet and a contact was obtained at 12,000 feet range, 30 degrees to starboard and below on a target flying on 110 degrees. . . . The contact established, the target proceeded to fly a complete orbit, finishing up on 090 degrees, the fighter going down to get below. The target dived and the fighter followed it down in steps until it settled at 500 feet in a continuous weave in azimuth. Holding the target dead ahead and level, pilot decreased height to 400 feet and at 140 indicated air speed, 10 degrees of flap, and obtained the first visual at 700 feet range on the aircraft flying at about 140 i.a.s. . . . the pilot identified it as a Heinkel 111.
>
> Closing in, a first burst of 2-3 seconds was fired from 400 feet, no strikes were seen but the enemy aircraft returned fire from the central position with a medium burst of green tracer and the crew got the impression that the Mosquito was hit. (On landing damage was found in the trailing edge of one of the blades of the starboard propeller.) After this the enemy aircraft turned off to port and Flying Officer Arnold fired another burst seeing strikes on the enemy aircraft's starboard engine, fire breaking out there and extending inboard. A third burst was fired with no observed results and the enemy aircraft climbed up suddenly to 1,200 feet still burning, where it partially broke up. . . . The enemy aircraft turned over starboard in a stall turn . . . and dropped burning into the sea, where a shower of sparks was seen just before the flames doused.

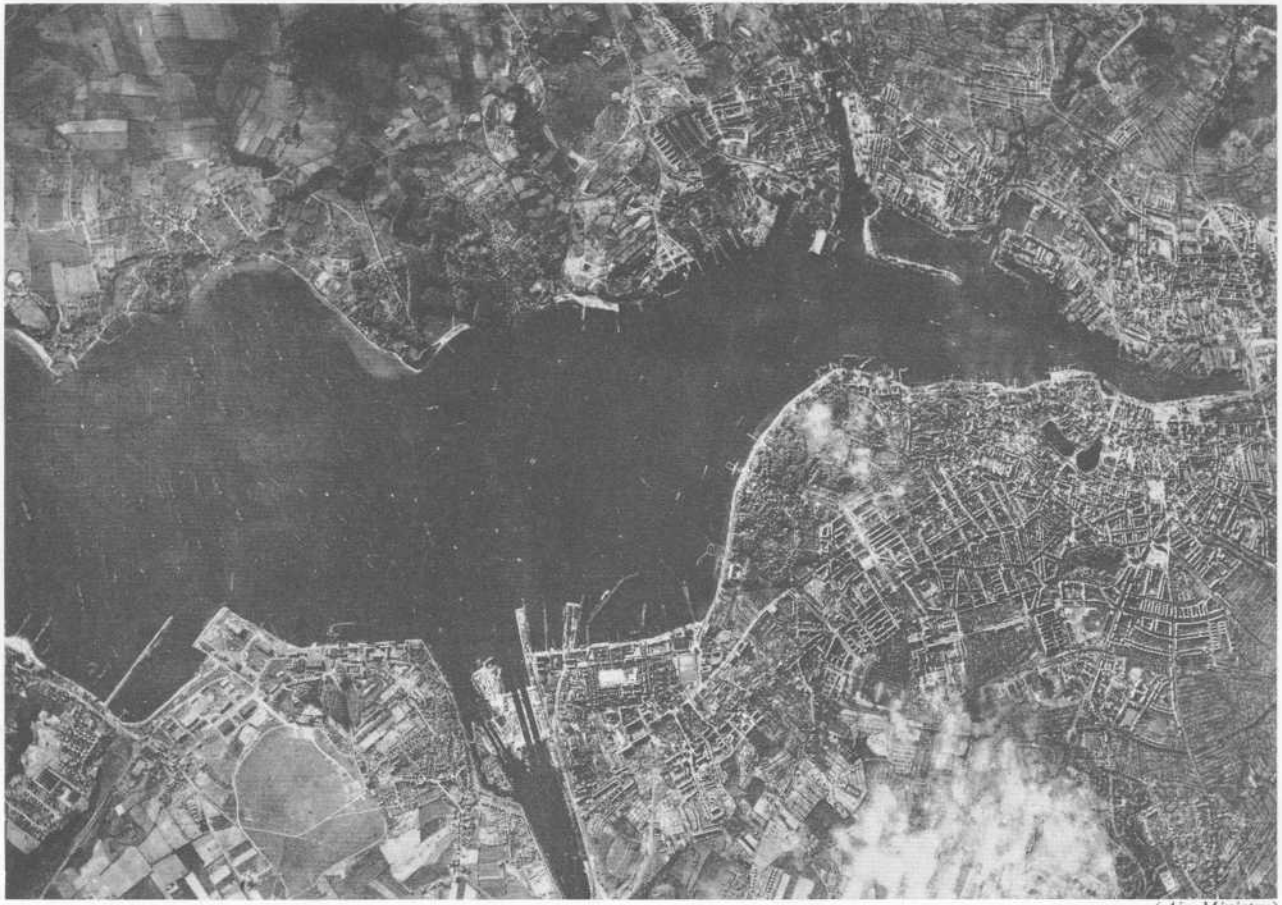
After this brilliant effort the excitement continued till the end of the month. On the 22nd-23rd, Mulhall held a contact for almost an hour and followed it some distance over the Dutch coast without being able to manoeuvre into a position where a visual sighting could lead to an effective attack. The very next night his aircraft failed to return from a similar patrol, while Roediger had an exciting chase, obtaining three very fleeting visual contacts but in each case being unable to fire owing to effective evasive action by the enemy at low altitude. On 24th-25th November Flying Officer Stevens destroyed another He-111 after a chase

lasting 25 minutes. It was seen to blow up on the sea close to the Dutch coast.

No further incident occurred on these patrols throughout December except that on one occasion a Mosquito was shot at and damaged by a Wellington patrolling the Dutch coast on anti-shipping duties. The squadron left the line at the end of the month for re-equipping with Mosquitos Mark XXX and to train for a new role—bomber support over Germany. Only a few scattered R.A.A.F. aircrew with R.A.F. night-fighter squadrons saw the end of the air-launch phase of the flying-bomb campaign, which came on 14th January. The Germans had found that the cost in aircraft and crews, operating first from Venlo and then from the Hamburg-Bremen area, was not justified by the actual results obtained against London. Low as these results[8] were they were better than in the final attempt during March with modified FZG76's fired from Holland. Air defences played a very minor role, but only 13 out of more than 150 missiles fired impacted in London.

Guided weapons, despite their great potential, had failed to achieve any notable military success. They were used only once in a tactical role, when 18 A-4 rockets were fired against the Remagen bridgehead on 17th March 1945. The bombardment of Antwerp did put additional strain on Allied supply arrangements at a critical stage of the attack on Germany but against preparations for OVERLORD and in the bombardment of London they failed to achieve any decisive objective. Total casualties in England from 8,246 flying bombs actually launched were 6,139 killed and 17,239 seriously injured; from 1,115 A-4 rockets 2,855 killed and 6,268 seriously injured. There was considerable damage to property and at times a noticeable reduction in industrial efficiency. Grave as were these casualties (14 per cent of civilian deaths and 28 per cent of civilians seriously wounded in the United Kingdom during the entire war) and despite the unnerving qualities of the weapons, they had far less military effect than had the German aerial bombardment during the winter of 1940-41.

[8] The number of abortive releases is not known but of 576 flying bombs plotted by the defences in the U.K. between 16 Sept 1944 and 16 Jan 1945, guns shot down 331 and fighters another 71 while only 66 reached Greater London. Sixteen Heinkels were shot down by night fighters and others were lost through weather hazards or accidents when releasing flying bombs.



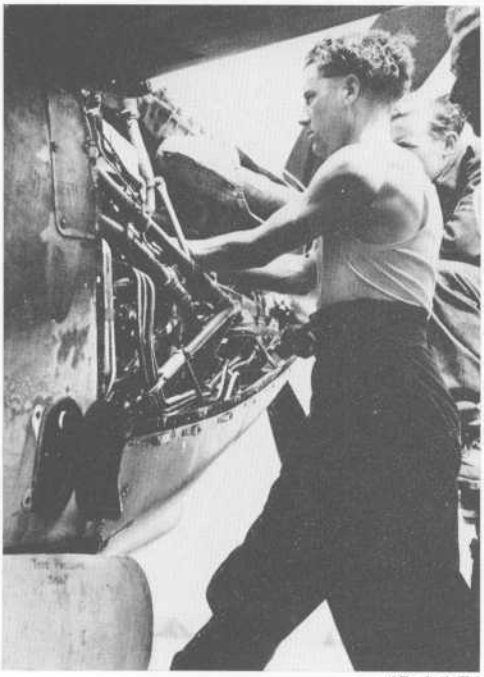
(*Air Ministry*)

Taken in June 1944 by a R.A.F. reconnaissance aircraft, this picture shows shipping held up in the Kiel canal after Mosquitos of Bomber Command had laid mines in the canal a month before.



(*R.A.A.F.*)

The German barracks at Banjaluka, a key communications centre, under fire from rocket-firing Beaufighters prior to its capture by Yugoslav partisans.



(*R.A.A.F.*)

No. 464 Squadron ground staff at work.



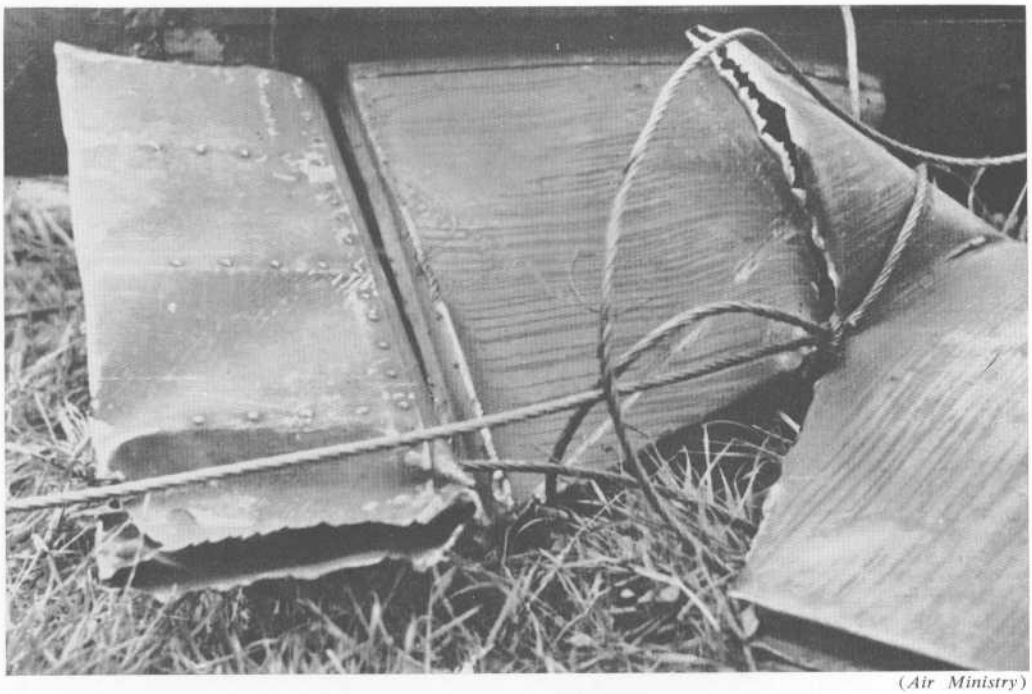
(*R.A.A.F.*)

F-Lt D. McK. Shanks of No. 464 Squadron dressed as a French peasant.



(*Air Ministry*)

A section of the balloon barrage used against flying bombs.



(*Air Ministry*)

A balloon cable wound tightly around the wing of a flying bomb brought down in September. The cables were fitted with a "double parachute link", a device which automatically severed the cable near the top and bottom so that the missile which struck it carried away the centre portion; parachutes then opened at each end of this portion with the object of stalling the flying bomb.



(*R.A.A.F.*)

Australians arriving at dispersal to join in an attack by heavy bombers on Courtrai railway centre in Belgium, July 1944.



(*R.A.A.F.*)

The staff in the control tower at a R.A.F. station bringing home the bombers in the early hours of the morning.

CHAPTER 9

THE CAMPAIGN AGAINST OIL JUNE-DECEMBER 1944

THE theoretical value of the German oil industry as a target for strategic bombing was recognised by Allied planners throughout the war, although at times widely differing interpretations were given of the available Intelligence material. Oil targets had consistently been included in and often headed the priority lists for R.A.F. attack in 1940 and early 1941, but with poor results. Up to mid-1941 the tactical and technical restrictions imposed by inability to find precise targets or to bomb accurately, together with the wide spreading in time and space of the relatively small bombing capacity of the R.A.F., strictly limited the material effect of bombing during a period when Germany had not bitten deeply into accumulated reserves, was still importing overland nearly 60 per cent of pre-war imports from all sources, and had captured nearly five months total oil stocks in the French campaign. This was moreover in a period when the only severe drain on German oil resources was in respect of aviation fuel for the *Luftwaffe* blitz against England. Even when the attack against Russia was launched in June 1941, the early progress of the campaign gave little hope that the R.A.F. with its existing capabilities could affect the issue by concentrating against oil targets, and accordingly, on 9th July 1941, Bomber Command was given the task of "dislocating the German transport system and destroying the morale of the civilian population".

Lacking both the means and the method to achieve observable results the R.A.F. thus failed in its first offensive against oil. During the next three years when great strides were made both in the expansion of Bomber Command and in its technical proficiency, the choice of targets for strategic attack was greatly influenced by the requirements of the immediate military situation. First the submarine threat to Allied supply lines during 1942-43 and then the danger to Allied air supremacy posed by the growing German fighter force in the autumn and winter of 1943 made it imperative for bombing directives to give priority to enemy submarine and aircraft industries even though "economic" targets may have promised far better results. Even in the spring of 1944, with the U-boat and German Air Force threats contained if not eliminated, and at a time when Anglo-American bombing forces were large enough and sufficiently well equipped and trained to deliver shattering and repeated attacks against Germany, these had to be postponed in favour of devoting full tactical support to the long-heralded invasion of France. Thus although the POINTBLANK directive of 4th February 1943, which was based on decisions taken at the Casablanca conference, included oil as one of the major German war industries scheduled for attack, this was a "paper" priority which could seldom be given more than nominal attention.

In addition to the over-all directives set down by the Combined Chiefs of Staff, and the urgent distractions imposed by the general war situation, another factor which worked against any deliberate campaign to destroy German oil resources was the fervent belief of R.A.F. Bomber Command in mass attacks against German cities. Area bombing had been adopted in July 1941 as a policy of necessity only until the precision and weight of night bombing could be improved. Harris, who became Commander-in-Chief of Bomber Command early in 1942, gathered around him a staff with a wholehearted belief in area bombing, not as a temporary expedient, but as a way to final victory. They had (at that time with some justification) a poor opinion of the economic Intelligence assessments on which spot target systems had hitherto been based. While doubting that war potential could be significantly lowered by bombing individual factories because of the suspected energy, recuperative powers and surplus capacity of German industry, they considered that lowering of morale and the cumulative effects of attrition caused by the destruction of German cities would bring about a general collapse of the economy. This feeling was by no means confined to the staff at Bomber Command headquarters but was disseminated through groups, squadrons and training units until it became the dominant credo of individual air crews, and was in fact much strengthened by the indifferent results of such attempts as were made during 1943 to attack oil targets in Germany. Gelsenkirchen, a sprawling network of townships shrouded by natural fogs and heavy chemical haze, had been attacked during 1943 several times with forces of more than 400 bombers but the dispersed nature of this industrial area made selection of precise aiming points difficult and also prevented the raging fires which were the chief agents of destruction in city areas. Australian and other aircrew felt that the same risks had to be run as in raids against major cities with little certainty that any worthwhile result would be achieved. Accordingly, in practice, the oil targets were treated as spoof, diversionary or last-resort targets to keep enemy defences stretched, but no systematic attempt was made by the R.A.F. in 1943 or early 1944 to destroy them.

The United States Air Force, equally dedicated to a contrary philosophy of daylight precision bombing against spot targets, naturally was far more eager to conduct an offensive against German oil potential. The first U.S.A.A.F. bombing attack in the European theatre was on 11th-12th June 1942 when 15 Liberators based in the Middle East attacked the Ploesti oilfields in Rumania. This, however, was a token of intention rather than a measure of capacity. Throughout 1943 the American Eighth Air Force in England was struggling to attain the means and opportunity to attack oil targets but was limited in its ability to strike deep into Germany and was moreover preoccupied by other tasks. Apart from a few experimental raids in western Germany, its next significant oil objective was again oil refineries and wells at Campina and Ploesti on 1st August 1943—a lapse of 14 months. This attack was made by Eighth Air Force bombers operating from North African bases but it failed to

achieve tactical surprise and the attacking force sustained heavy losses. Moreover the actual damage to installations at Ploesti was not as great as had been anticipated although the main achievement of the attack was to eliminate permanently the surplus of effective refinery capacity. Results balanced against losses were not such as to encourage repetition of the raid under existing circumstances and further attacks against Ploesti were deferred until the American Fifteenth Air Force could be transferred from North Africa to the Foggia complex of airfields in Italy from which it could be expected to operate in strength and with effective fighter protection. Throughout the winter of 1943-44 neither the Eighth Air Force, heavily committed to the urgent campaign against the German aircraft and ball-bearing industries, nor the Fifteenth Air Force, bogged down by logistic difficulties and tactical tasks, could devote much attention to the oil campaign.

Spring 1944 saw a re-examination of strategic air targets. The Anglo-American heavy-bomber forces had expanded with almost dramatic speed so that in March 1944 Bomber Command alone had 1,300 heavy and 300 other aircraft, while the Eighth Air Force was numerically larger and still expanding. Bases, support manpower, replacements of aircraft and crews, and supplies of bombs were all available in adequate numbers. The monthly average bomb-load on Axis-held territory, which in 1940 had been only 1,128, in 1942 when the U.S.A.A.F. first operated had been 6,000, and in 1943 had been 26,000 tons, had now risen to 45,000 tons, and it was planned to more than double that figure.[1] The means of carrying out the combined bombing offensive against Germany were manifestly not lacking. The method of doing so had at the same time been greatly facilitated by equally impressive improvements in operational technique. The development of the ultra-long-range Mustang fighter permitted the U.S.A.A.F. to plan continuous fighter escorts for attacks deep into the heart of Germany. New radar devices such as H2S Mk III and G-H[2] were already available in small quantities and rendered possible precision-bombing through cloud or at night. There was no longer any German threat which demanded imperatively the diversion of heavy bombers from purely strategic objectives. Accordingly, on 5th March 1944, General Spaatz presented to General Eisenhower a proposal that oil targets should be regarded as an alternative to the transportation plan put forward by A.E.A.F. as a prerequisite for OVERLORD. However, Leigh-Mallory and Tedder were earnest advocates of the policy of attacking the extended transport targets and Harris was definitely opposed to the oil plan, so Spaatz's proposal failed.

What had been rejected officially could still be obtained by indirect means, for Spaatz no less than Harris was well aware that the cumbrous system of personalities, committees and staffs dealing with the planning and direction of Allied policy was not geared for precise and unequivocal

[1] In fact the average monthly figure for 1944 reached 131,000 tons.

[2] A radar blind-bombing system which used Gee equipment in conjunction with an airborne transmitter and two ground beacons.

decisions. A lack of clarity in the wording of major directives made these an adequate cloak for a variety of conflicting decisions which were seldom clearly challenged if pursued with determination by operational commanders at lower levels. The oil campaign was thus begun by the U.S.A.A.F. in a semi-clandestine manner when, on 5th April 1944, the Fifteenth Air Force attacked what were alleged to be railway marshalling facilities at Ploesti. This raid was ostensibly to harass the Germans facing Russian forces then breaking into Rumania, but the real target was the Astra group of refineries. Further raids against transportation targets at Ploesti followed on 15th and 24th April, and by 4th May M.A.A.F. headquarters gave a belated aura of legitimacy by granting approval for a continuance of such attacks if tactical considerations allowed.

A different subterfuge had to be adopted by the Eighth Air Force in England. Although on 26th March Eisenhower finally declared that rail centres affecting OVERLORD together with attacks against the German Air Force must take priority over oil targets, Spaatz continued to canvass the desirability of attacking oil installations in Germany, both to reduce supplies to the *Luftwaffe* and to provoke heavy air battles which on a knock-for-knock basis could be regarded favourably as coming within the priority already allotted to attrition of the G.A.F. On this rather tenuous but passionately pleaded argument Eisenhower agreed on 19th April that the next two days of good visual conditions could be devoted to the bombing of oil targets in Germany as an experiment to discover if the enemy was willing to defend these plants. Bomber Command declined to participate, having no faith in the objective and being unwilling either to mount large-scale daylight raids into Germany at this stage, or to release prematurely to squadrons the new H2S or G-H equipment which would give accurate blind-bombing results but was in reserve for Bomber Command's own chosen targets. In the event it was not until 12th May that General Doolittle (commanding the Eighth Air Force) was able to send 900 Fortresses and Liberators against six synthetic oil plants in Germany. Heavy air battles ensued between the German Air Force and escorting Allied fighters and although 46 American heavy bombers were shot down, an equal number of German fighters was destroyed[3] and all six targets were damaged, three very heavily.

On 28th May some 400 heavies again attacked five of the damaged plants and next day 224 Liberators made a long run to attack Politz. Both these raids met more than normal opposition from German fighters and 49 bombers were lost. Thus, before OVERLORD was mounted, the U.S.A.A.F. had enthusiastically expanded its "two clear days" of experiment into three day-raids: it felt vindicated by the observed results of damage and by the fierce enemy reaction, which was interpreted to mean that oil targets were a specially sensitive enemy defence commitment. Lobbying to extend the campaign and to gain official sanction for it was redoubled. On 8th June, only two days after the landings in Normandy, Spaatz was able to issue to the two components of the

[3] USAAF claims amount to 190; official German figures to 50 on this day.

American Strategic Air Forces a directive that their main strategic aim henceforth was to deny oil derivatives to the enemy armed forces. The Fifteenth Air Force was to attack refineries at Ploesti, Vienna and Budapest together with synthetic oil plants in southern and eastern Germany and Poland; the Eighth Air Force was allotted crude oil refineries and synthetic plants in central Germany. At the same time Bomber Command, despite passive opposition, was given a priority list of 10 synthetic oil plants in the Ruhr for attacks complementary to the American Strategic Air Forces' campaign. The operations of the three major bombing forces were for the first time to be coordinated with the R.A.F. as a full-scale partner in precision attacks both by night and day.

What then was the German oil industry which had belatedly but finally been adopted as a prime strategic target? Germany was not well endowed with natural oil resources and before 1939 imported nearly 60 per cent of her total requirements from outside Europe—sources which would be inaccessible in any conflict with a major naval power. Industrial and military economy were accordingly planned to meet this situation and in 1938 total production and imports amounted to only 7,000,000 tons although Great Britain with its much smaller population imported 12,000,000 tons in the same year. War plans were based on *blitzkrieg* concepts of successive short campaigns with intermittent recuperation of stocks to offset periods of heavy expenditure; even the German Air Force was designed for ground support rather than a sustained bombing offensive. Conservation of stocks and strict economy in use was supported by an energetic campaign to develop synthetic as well as natural oils. From 1933 onwards a vigorous search was made for new deposits of crude oil in Germany and the same process took place in Austria after the *Anschluss*. Alone among the major powers Germany sedulously fostered during the 1930's a synthetic oil industry, and in 1938 the Karin Hall plan called for an output of finished oil products from domestic crude oil and coal of 11,000,000 tons by 1944, equal to one and a half times the total supply from imports and production in 1938. On the outbreak of war, seven hydrogenation plants, seven Fischer-Tropsch[4] synthesis installations and a few tar distillation or carbonisation plants were already in operation and others were being prepared. All these plants were built either in the Ruhr, to use the high quality bituminous coal deposits, or in central Germany where there was abundant brown coal; crude oil was derived mainly from the plain area near Hanover or from Austria; the main refineries in Germany proper were at Hamburg, Bremen and Hanover.

Wartime annual oil supplies available to Germany from continental imports (mostly from Rumania), increased development of domestic crude

[4] In this process coke or brown coal is blown with steam and either air or oxygen to prepare hydrogen and carbon monoxide which are then allowed to combine in a chemical reaction to produce a high quality crude oil. The plant required a gas preparation section covering several acres and with characteristic steel towers about 100 feet high; purification sections to remove sulphur and other compounds; reaction sections in which oil is synthesised; condensation plants; absorption plant and fractionalisation columns. The process is conducted at atmospheric pressure and all units are of much lighter construction than are the hydrogenation plants.

oil supplies, and expansion of synthetic production actually rose from 7,500,000 tons in 1940 to 9,000,000 in 1941, 9,500,000 in 1942 and 11,250,000 in 1943 without recourse to the special *Wehrmacht* and *Fuehrer* reserve stocks to be broached only in emergency. In this expansion the synthetic oil industry played a dominant part because output rose from 2,250,000 tons in 1939 to 6,000,000 in 1943. Consumption by the armed forces also rose during this period but was checked by very stringent oversight of motorised units and by cutting civilian use of oil products from the pre-war level of 2,250,000 tons to 333,000 tons annually. Thus, until the end of 1943, the German Army was never critically short of oil and the navy balanced expanding U-boat campaigns by leaving capital ships idle in harbour. It was only in aviation gasoline that a dangerous shortage arose as early as January 1942 when the hydrogenation plants were all switched to produce a maximum amount of aviation fuel, so that by January 1944 no less than 92 per cent of all aviation fuel was derived from hydrogenation. Even so, shortage of aviation fuel in mid-1942 led to partial suspension of training so that operational squadrons could remain in the line, and this situation arose again during the summer of 1943 when allocations of fuel for bench-testing aero-engines and flight-testing aircraft was also greatly reduced, to the detriment of efficiency.

Before May 1944 less than 4,000 tons of bombs had been aimed at the German oil industry in over three years of effort which had been sporadic both in space and time. During the next 12 months some 180,000 tons of bombs were in fact to be employed against the same target complex.[5] This tonnage could have been increased at will for there was no lack of means in terms of aircraft, crews or bombs; but there were many other urgent tasks both strategic and tactical for the heavy bombers. The attack on oil targets was to be systematic, severe and of sufficient frequency to limit production as decisively as possible, but it was never given overriding priority. Indeed it soon became apparent to Allied planners that there were at least five different facets to the problem, each of which was susceptible in a differing degree to aerial bombing and each of which had to be tackled in a different way. The amount of effort actually expended against hydrogenation and Fischer-Tropsch plants, which formed one group; other synthetic plants; German refineries; production in occupied territories, and sources of imports, was very uneven. Damage inflicted on the various sources was also very disparate but not always in the same relation to the effort applied.

Bomber Command began its part in the oil campaign during the night of 12th-13th June when 294 Lancasters sought out the Bergius plant at Nordstern (Gelsenkirchen), reputedly one of the largest hydrogenation plants, producing 7 per cent of total German production. Fourteen crews from No. 460 and fifteen Australian pilots from Nos. 15, 90, 115, 166,

[5] It is noteworthy that this tonnage against a vital strategic target was only double that which the Anglo-American heavy bombers used in a quarter of the time in purely palliative measures against flying-bomb installations in Normandy.

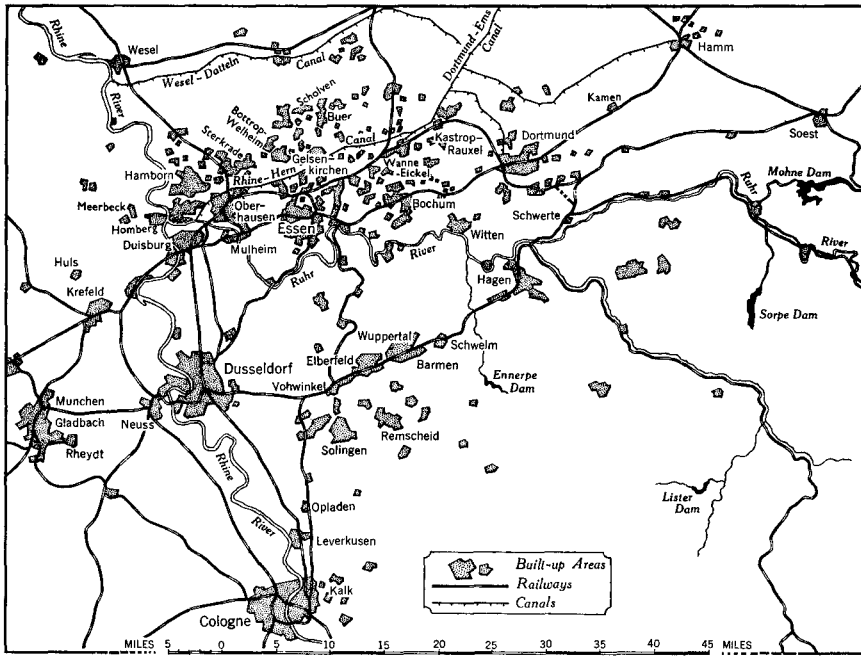
514, 622 and 626 Squadrons took part. The crews of No. 460 were enthusiastic about returning to the Ruhr after three weeks spent in concentrating on French targets, but before the raid were not very optimistic of success. They found, however, to their surprise clear weather over the target with less haze than was usual at Gelsenkirchen. Pathfinder marking was prompt and appeared to be well concentrated except for one red target indicator which fell about 10 miles south of the main cluster and attracted some of the bombs from nervous crews arriving early in the raid. Once the rhythm of attack began, large explosions were reported and black smoke rose to a great height. Seventy-five tons of bombs were dropped (out of 1,444) by crews of No. 460 and they turned for home in far more confident vein. They were also heartened in that ground defences seemed far less active than was normal for Ruhr targets, and there were no night fighters active during the attack.

Nevertheless free-lance German fighters penetrated the bomber stream during its homeward flight over Holland and 17 Lancasters were shot down including one from No. 460. Subsequent air photographs showed that the damage inflicted by this raid was severe and extended throughout the plant. Injection houses, generating plants, the turbine house, hydrogenation stalls, gas generation and paste preparation plants all revealed some degree of damage.[6] In addition many storage tanks were destroyed and all 13 cooling towers damaged. Other facilities such as railway lines, sidings and waggons were also hit. The contemporary estimate was that efforts to make repairs could result in only a partial resumption of work.

Four nights later the target was the Fischer-Tropsch plant of the Ruhrchemic company at Holten (Sterkrade) and the bombing force was a mixed team of Lancasters and Halifaxes drawn from Nos. 1, 4 and 6 (R.C.A.F.) Groups. On this occasion No. 466 was the only R.A.A.F. squadron engaged; it dispatched 15 crews of which one failed to attack and returned early because of faulty electrical services. But whereas the initial raid had enjoyed good conditions, the Australians on this night reported special difficulties not only from gun defences and night fighters but from weather as well. A solid sheet of cloud lying between 7,000 and 10,000 feet completely covered the area and the majority of marker bombs quickly disappeared into this cloud, leaving crews no option but to aim at any glow seen below the cloud, and unable to distinguish between target indicators and enemy decoys. Consequently 1,275 tons of bombs were dropped in what all admitted to be a very scattered attack. Flak was intense and discouraged crews from remaining in the area in case the cloud thinned, while enemy fighters were assisted by the good visibility in the region above cloud. Although the special Mandrel screen was in operation and also a new radio counter-measure by which ground

[6] In the hydrogenation process coal is ground to powder, mixed with heavy oil to make paste and pumped through heat interchangers with compressed hydrogen, which at 800°F combines with part of the coal. After cooling, the mixture is separated into gas, liquid and sludge. The liquid is fractionated into light and heavy oils while the sludge is reprocessed to provide oil for mixing more coal-paste. Hydrogenation is conducted at huge pressures and at high temperatures which requires the most sturdy construction surrounded by heavy concrete walls.

stations jammed the M-F beacons used to transmit information to German night fighters, 32 aircraft (10 per cent of the force) were shot down and many more reported combats. One crew of No. 466 claimed the destruction of an unidentified fighter while Pilot Officer Sargant[7] was attacked on two occasions, first by an FW-190 and then by a Ju-88. His Halifax was hit during these encounters, but not badly, and the crew suffered no casualties.



The importance which the Germans placed on defence of the synthetic oil plants was amply shown on 21st-22nd June when Bomber Command mounted two raids, this time with smaller forces each of approximately 130 aircraft. The two Waddington squadrons (Nos. 463 and 467) provided 34 Lancasters for the first attack on the hydrogenation plant at Scholven-Buer near Gelsenkirchen but again a heavy undercast spoilt any attempts at precision bombing and only slight damage was inflicted on the plant for an expenditure of 570 tons of bombs and the loss of eight aircraft in the whole force. Few crews on return were able to claim an uneventful trip. No. 467 lost two Lancasters, had two more badly holed by flak and another, piloted by Flying Officer Sayers,[8] slightly damaged during two separate encounters with night fighters, one of

[7] F-O G. A. Sargant, DFC, 415686; 466 Sqn. Photo engraver; of Subiaco, WA; b. Wickepin, WA, 3 Oct 1913.

[8] F-Lt J. L. Sayers, DFC, 414844. 467 Sqn, 617 Sqn RAF. Railway employee; of Brisbane; b. Brisbane, 21 Feb 1921.

which was seen to be hit by his gunners' return fire and plummet down with its port engine on fire. No. 463 lost only one Lancaster but another piloted by Pilot Officer Hattam[9] was heavily engaged by flak during the steady run-in to the target. Flight Lieutenant Baker of No. 97 bombed successfully but then his port-outer engine caught fire and he was soon afterwards hit by ground gunfire and had to evade fighters as well; from the same squadron a very experienced pilot, Squadron Leader McLeod,[1] failed to return. Losses and damage might even have been higher but for a new evasion technique employed by this force during its withdrawal. By prearrangement the force altered course and went down to a lower level, which appeared to cause difficulties for the ground gunners and also to mislead the night fighters, which lost contact.

Even stiffer opposition was encountered by the other force sent that night to bomb the Wesseling hydrogenation unit. Bombing was again unsatisfactory in cloudy conditions, and no fewer than 37 aircraft failed to return. Enemy fighters approached the bomber stream before it reached Wesseling and attacked repeatedly. An aircraft piloted by Pilot Officer Rackley[2] of No. 630 exchanged fire with a Ju-88 and suffered extensive damage to its control surface but continued on to bomb. On the homeward journey Rackley was forced to lock the control column in a fixed position and jam the rudder hard to starboard to retain any control over the aircraft. By the time he was over England he found that the Lancaster would fly only straight and level and he had no alternative but to order his crew to bale out. During the battle with the night fighter the parachute of the rear gunner had been damaged so another crew member, Pilot Officer Morgan,[3] in an attempt to help his comrade, volunteered to make a twin jump. Unfortunately when the parachute opened the gunner's harness, which was also possibly damaged, broke and he fell to the ground. Rackley, after all his crew had left, baled out himself only to land on a railway line and have his parachute entangled with a passing train which dragged him along the permanent way.

Similar outstanding determination to overcome difficulties was shown by Flying Officer Hegarty[4] of No. 83 Squadron whose aircraft was also seriously damaged by an Me-110 night fighter on his outward journey. He reached the target but then discovered he could not drop his bombs because of damaged electrical gear. His aircraft was twice struck by flak as he flew in circles while the crew tried to repair the damage. A bombing run was then made but the bomb-doors would not open, so he reluctantly turned for home, and was hit again by gunfire,

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[9] F-O R. F. Hattam, DFC, 410331; 463 Sqn. Salesman; of Elwood, Vic; b. Melbourne, 16 Jul 1922.

[1] Sqn Ldr L. A. J. McLeod, DFC, 413409. 50 and 97 Sqns RAF. Clerk; of Burwood, NSW; b. Auckland, NZ, 13 Feb 1920. Killed in action 22 Jun 1944.

[2] F-O L. N. Rackley, DFC, 414828; 630 Sqn RAF. Clerk; of Coorparoo, Qld; b. Brisbane, 27 Mar 1922.

[3] F-O D. S. Morgan, BEM, 413786. 630 Sqn RAF, 467 Sqn. Clerk; of Dubbo, NSW; b. Goulburn, NSW, 30 Jun 1923.

[4] F-O D. J. Hegarty, DFC, 420561. 630 and 83 Sqns RAF. Jackeroo; of Cassilis, NSW; b. Marrickville, NSW, 13 Nov 1920. Killed in aircraft accident 16 Jul 1944.

this time on the starboard wing. Evasive action had by now taken him out of the bomber stream, and when he was north of Antwerp he was intercepted by a free-lance Me-110; in this combat two of his crew were wounded and further structural damage sustained by the Lancaster. The fighter was finally shaken off and Hegarty coaxed the crippled bomber to Woodbridge, an airfield specially reserved for crash landings, where after vainly attempting to repair his landing-wheel controls he put the aircraft down safely. A third Australian, Flight Lieutenant Saunders,[5] also of No. 83 Squadron was attacked six times by fighter aircraft before reaching Wesseling.

Apart from these main-force attacks, Mosquito aircraft of the Pathfinder Group made six small-scale raids in June 1944. Four of these attacks, totalling only 80 sorties, were against the Scholven-Buer installations, while the other two, totalling 82 sorties, were directed to the Meerbeck works of Rheinpreussen, a typical Fischer-Tropsch plant about three miles north-west of Homberg. For the comparative outlay these small raids were far more effective than the main efforts, especially against the "thin-skinned" Fischer-Tropsch target. This was the result of the superior tactical freedom of the Mosquito in bad weather and also because each aircraft could be controlled by Oboe, and thus even when bombing blind a greater theoretical concentration of bomb pattern was possible. Only two R.A.A.F. pilots, Flight Lieutenant Molony[6] of No. 105 and Flight Lieutenant Grant[7] of No. 109, both experienced second-tour men, have been identified in the first two attacks against Meerbeck, but, as this plant will henceforth be used as the yardstick of Bomber Command efficiency against this type of target, the raids warrant some analysis.

Meerbeck occupied an area of about 100 acres of which one-third was occupied by essential process structures and the remainder open ground, transport and supply facilities. It was defended in June by nearly 100 guns, was well camouflaged and had a decoy plant about three miles away. Previously the main plant had never been bombed but the decoy plant had been successful on several occasions in attracting bombs during raids in the Homberg area. On 25th-26th June, however, the Mosquitos did hit the main works although, of 44 tons of bombs dropped, only a ton and a half fell inside the plant perimeter. Even so the sulphide-removal sections, gas-holder, cracking section and many pipe-lines were damaged.[8] This raid alone cut the daily production at Meerbeck of 175 tons by two-thirds. The second raid on 30th June-1st July employed heavier individual bombs, but of 55 tons dropped only six and a half fell on

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[5] F-Lt A. J. Saunders, DFC, 8687. 467 and 463 Sqns, 83 Sqn RAF. Accountant; of Townsville, Qld; b. Charters Towers, Qld, 28 Jun 1917.

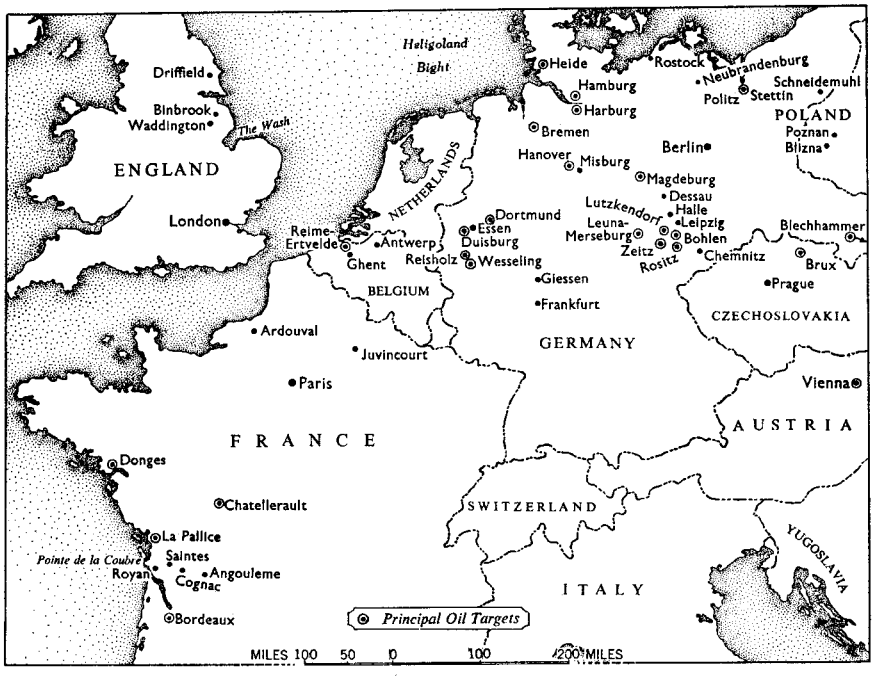
[6] F-Lt J. P. Molony, DFC, 405318; 105 Sqn RAF. Schoolteacher; of Woodend, Qld; b. Mitchell, Qld, 27 Sep 1913.

[7] F-Lt C. R. G. Grant, DFC, DFM, 402571. 460 Sqn, 109 Sqn RAF. Overseer; of Darling Point, NSW; b. Sydney, 7 Apr 1911.

[8] All details of bombs within the perimeter of Meerbeck, damage inflicted and effect on production are quoted from the careful records maintained at Meerbeck. Other statistics are from Bomber Command sources.

the plant. This was sufficient to cause severe damage to gas-holders and a compressed-air main which put the whole installation temporarily out of action.

Meanwhile the Eighth Air Force, despite its heavy tactical OVERLORD commitments, attacked refineries at Hamburg on the 18th, refineries and synthetic plants in north-central Germany on the 20th, the refinery at Bremen on the 24th, and more synthetic units on 29th June. From Italy the Fifteenth Air Force that month attacked the major Hungarian, Yugo-



slav and Italian refineries, oil storage facilities in the south of France, in addition to large-scale fighter-bomber (10th June) and heavy-bomber (23rd June) raids against Ploesti. Wellingtons of No. 205 Group continued from Italy their steady campaign of mining the Danube River in an attempt to prevent the transport of oil products.

In July 1944 Germany's oil resources still stretched from Rumania and Austria in the east and as far north as Politz, but the effects of the systematic bombing had become most pronounced. At the end of June the Munitions Minister, Albert Speer, had written an urgent personal appeal to Hitler reporting the serious losses of fuel already sustained and emphasising the need for rapid repair and expansion of the industry. "Otherwise," he wrote, "it will be absolutely impossible to cover the most urgent of the necessary supplies for the *Wehrmacht* by September,

in other words, from that time onwards there will be an unbridgeable gap which must lead to tragic results." Edmund Geilenberg, a man of great organising ability, was appointed with overriding powers to take charge of the repair, building and dispersal of oil plants. A labour force of 350,000 men was raised to work night and day on repairs. So efficient was this organisation that the largest oil plants were often put back into full production in a matter of a few weeks and in some instances a comparatively high level of capacity was achieved within a week of an apparently devastating air attack.

The Allies were well aware of German resourcefulness and energy in construction and repair of railway and industrial targets, and now that there was common agreement in principle that the campaign against oil should continue as a main objective of strategic bombing, a Joint Oil Targets Committee was set up to obtain and evaluate information on the constantly changing position. Heavy demands were placed on all branches of Intelligence and repeated photographic reconnaissance was required. This information, so diligently acquired, permitted prompt attacks against new units, or repeat attacks against resurgent production at damaged plants. The situation developed into a grim logistic duel, the Allies intent on inflicting the maximum destruction, the Germans concentrating on the provision of new facilities and restoration of existing damaged units.

One of the first decisions of the Joint Oil Targets Committee was to recommend intensification of attacks on aviation gasoline production, which gave automatic priority to the hydrogenation plants and to refineries in Rumania, Hungary, Poland and Germany in that order. One of these targets, the Rumanian network of refineries at Ploesti, remained the favourite target of the Fifteenth Air Force throughout July and August until the crippled industry was finally captured by Russian ground forces on 22nd August. The air campaign had already virtually removed Ploesti from the list of German oil sources because monthly exports to Germany of finished oil derivatives, which had averaged 180,000 tons monthly early in 1944, fell to 50,000 tons in June after the air campaign had got under way, and practically ceased entirely in July. The cost of the campaign had not been light, because in four months some 12,000 tons of bombs had been expended and no fewer than 350 heavy bombers shot down; the aim had been achieved, however, and by a sustained offensive 20 per cent of the total German supplies had been cut off by bombing. Once Ploesti was removed from the target list the M.A.S.A.F. heavy bombers turned against refineries in Poland, Austria and Czechoslovakia, with occasional raids on synthetic plants in southern and eastern Germany. By the end of September oil production in German occupied territories, which had averaged 50,000 tons monthly at the beginning of the year, was down to 5,000 tons, so that yet another 5 per cent of potential production was lost to the enemy.

The two heavy-bomber forces based in England were not free as was M.A.S.A.F. to wage an uninterrupted, single-minded campaign during the third quarter of 1944. The CROSSBOW offensive and support of land

forces absorbed a high proportion of effort both of Bomber Command and the Eighth Air Force, while the Americans, fearing a resurgence of German fighter capacity, turned once more to attacks on the German aircraft industry. Nevertheless in three months the weight of bombs dropped against oil targets alone was nearly equal to the total tonnage dropped against all enemy targets from the beginning of the war to the end of 1941. This effort was applied as shown hereunder:

Force	No. of targets	Aircraft attacking	Tonnage of bombs
RAF Bomber Command .	39	4,437	18,662
Eighth Air Force . .	79	7,705	19,439

Despite the greater number of American sorties it will be seen that both forces dropped approximately the same bomb-load. This was by no means a true measure of the effectiveness of the attacks and it was apparent that Bomber Command, which used a high proportion of 4,000-lb and 1,000-lb bombs, was creating more relative damage than the Eighth Air Force, which relied on 250-lb and 500-lb bombs. The short duration of most U.S.A.A.F. raids enabled German A.R.P. wardens to leave shelter in time to extinguish incipient fires, whereas the longer duration, lack of uniformity in approach, and heavier weight of the average R.A.F. attack provided greater difficulties for the defenders. Even in the crucial field of accuracy of aim the R.A.F. improved blind-bombing radar techniques and gave surprisingly good results; whereas, although U.S.A.A.F. visual raids were superior, in part-visual and part-radar and blind-bombing raids they were less accurate than average R.A.F. raids. On the other hand Bomber Command had a high proportion of targets which, if hit at all, were susceptible to severe damage; the U.S.A.A.F. did the bulk of work against refineries which had fewer critical key-points and which could absorb great punishment without a correspondingly heavy decline in output. The Americans by spreading the offensive throughout Germany also did much to divide and saturate enemy defences both ground and air.

The late summer and the autumn attacks by Bomber Command against oil represented 11 per cent of the efforts against all types of targets. The table set out below illustrates the way in which this campaign was conducted. In July Ruhr synthetic plants were given precedence, but in August when the ground battle became fluid, the main weight was switched from production units to storage depots, dumps and refineries in occupied territories. September was entirely devoted to attacks on synthetic production.

1944	Total attacks	Synthetic oil plants	Depots, dumps etc in occupied territories
July . . .	7	5	2
August . .	21	2	19
September . .	11	11	—
	39	18	21

Six of the raids against synthetic oil plants at Wesseling, Kastrop-Rauxel, Dortmund, Wanne-Eickel and Sterkrade (twice) were made by main forces drawn exclusively from No. 6 R.C.A.F. Group and in these except for minor pathfinder support Australians played no part. In the other 12 attacks either R.A.A.F. squadrons or individuals were prominent although the Waddington squadrons, Nos. 463 and 467, were not engaged at all. Thus it was No. 460 which on 18th-19th July marked the re-opening of the Bomber Command campaign against oil by dispatching 18 Lancasters in a main force of 153 (plus 17 pathfinders) against Scholven-Buer. The previous attack by No. 5 Group on 21st-22nd June had been assessed as a relative failure because unfavourable weather had led to a very scattered bombing pattern. On this occasion, however, the Australians set off in optimistic mood because the forecast weather was good and an intricate pattern of other operations scheduled over Germany and France that night gave some hope that this force might achieve a degree of surprise attack at Scholven-Buer. Both these factors remained favourable throughout the raid because the German night-fighter controllers mistook the force for a diversionary sweep through the Mandrel screen and held back the main body of night fighters to meet some other threat. The Lancasters accordingly reached the Gelsenkirchen area in a compact group and found that there was practically no cloud and only moderate ground haze. In these conditions the pathfinders dropped red target-indicator bombs with great deliberation and backed up the more centrally placed ones with extra markers. A highly concentrated bombing attack then developed, resulting in a very large explosion which impressed even the most experienced crews, for whom this type of target, a relatively small dispersed plant hidden in the natural Ruhr defences, had hitherto not produced spectacular results.

One R.A.A.F. crew failed to reach the target because the Lancaster's escape hatch blew off during the outward journey and the aircraft returned to base. The remaining 17 Lancasters of No. 460 dropped 91 tons (out of a total of 787 tons) from heights between 15,000 and 20,000 feet. All the debriefing reports on return carried a confident note, and this enthusiasm was largely justified by subsequent reconnaissance photographs. Distillation and gas-cleansing plants, hydrogenation stalls and the compressor house had all received substantial damage. Gas-holders, cooling towers, oil tanks and many unidentified buildings in the southern part of the Scholven-Buer works had been hit by bombs. Temporarily this plant was removed from the list of priority targets. The cost had not been high, because, although the integrated ground gun defences of the area had been very active, only four Lancasters (including one from No. 460 and another of No. 100 piloted by an Australian) were lost. The Canadian squadrons which attacked Wesseling that night also had an untroubled night losing only one out of 194 Lancasters dispatched.

Conditions were very different two nights later when the Halifax squadrons of No. 4 Group were sent out to make the initial Bomber Command attack on Bottrop-Welheim, while No. 3 Group staged a main-

force raid against the Meerbeck plant which had already suffered eight small-scale experimental or harassing raids between 25th June and 17th July but was now listed for a knock-out blow. The Germans were not deceived into thinking that either force was a diversion and both air and ground defences were very active.

For the Bottrop raid No. 466 provided only 6 Halifaxes because 12 others were sent that night to attack flying-bomb installations at Ardouval. However 17 Halifaxes (from Nos. 10, 51, 76, 78, 578 and 640 Squadrons R.A.F.) were piloted by Australian airmen. Flak was variously reported as being from moderate to intense, but, although four Halifaxes piloted by Pilot Officer Hagstrom[9] and Flying Officer Murtha[1] (No. 10 Squadron R.A.F.), Flying Officer Anthony[2] (No. 640 R.A.F.) and Flying Officer Rodgers[3] (No. 466 R.A.A.F.) were damaged by gunfire while approaching the target, in each case the crews completed their attacks and withdrew successfully. A crew of No. 51 Squadron, including four Australians in addition to the pilot, was not so fortunate. Their Halifax was very badly damaged just after bomb release and the port fin and rudder were shot away, large holes were punched in the port mainplane and fuselage, and the rear turret was buckled. The engines were not damaged but it was some little while before the starboard rudder could be made to function adequately and even then the aircraft was so difficult to control that the bomb aimer, Flying Officer Cosgriff,[4] had to assist the pilot, Flying Officer Jowett,[5] in wrestling with the control column throughout a nightmare return journey. On reaching England Jowett tried to save the aircraft by making a landing at the emergency airfield at Woodbridge, but unfortunately the Halifax crashed into some trees and caught fire. Both Jowett and Cosgriff were killed on impact but the other crew members escaped, except for the Australian mid-upper gunner who had already been injured over the target and suffered mortal burns while attempting to leave the burning aircraft.

Eight Halifaxes were shot down by fighters or the Bottrop gun defences that night and many inconclusive skirmishes with night fighters were reported by returning crews. A typical combat report was submitted by Pilot Officer Wilson[6] of No. 466 who described how his Halifax had been constantly harassed by anti-aircraft fire near the target but had not been hit. In spite of the need to take evasive action during his bombing run, Wilson obtained an excellent target photograph at the time of

[9] F-O H. R. Hagstrom, DFC, 420876. 10 Sqn RAF, 466 Sqn, 96 Sqn RAF. Clerk; of Manly, NSW; b. Sydney, 30 Nov 1920.

[1] F-Lt J. D. Murtha, DFC, 23409; 10 Sqn RAF. Farmer; of Cowan Cowan, Qld; b. Brisbane, 18 Sep 1920. Died 10 Mar 1949.

[2] F-Lt T. W. Anthony, DFC, 401481; 640 Sqn RAF. Junior clerk; of Armadale, Vic; b. East Malvern, Vic, 5 Mar 1921.

[3] F-Lt J. T. Rodgers, DFC, 425190. 466 and 462 Sqns. Clerk; of Toombul, Qld; b. Brisbane, 22 Jul 1921.

[4] F-O B. P. Cosgriff, 418737; 51 Sqn RAF. Clerk; of Caulfield, Vic; b. East Malvern, Vic, 17 Mar 1922. Killed in action 21 Jul 1944.

[5] F-O H. A. Jowett, 418427; 51 Sqn RAF. Clerk; of Melbourne; b. Harrogate, England, 29 Aug 1916. Killed in action 21 Jul 1944.

[6] F-O P. D. Wilson, DFC, 417687. 466 and 462 Sqns, 96 Sqn RAF. Clerk; of St George's, SA; b. Hyde Park, SA, 21 Feb 1922.

bombing. He was trailed on the homeward flight by two unidentified fighters both of which were burning navigation lights. One attempted several times to occupy the attention of the bomber crew while his partner attacked, but on each occasion good team-work by the gunners and skilful evasive action by the pilot caused the attack to be abortive. On reaching the Dutch coast these two fighters switched off their lights and disappeared, but some minutes later Wilson had to face another attack from an Me-210 which opened fire at a range of 600 feet. Once again the pilot received timely warning from the rear gunner who had seen the enemy silhouetted against cloud and the pursuer was unable to score any hits.

In addition to flak and fighters German defence measures at Bottrop included the use of decoy markers to the east, north and north-east of the aiming point. There was some ground haze and these decoys were successful in attracting a proportion of bombs, although the northern part of the plant was heavily hit.

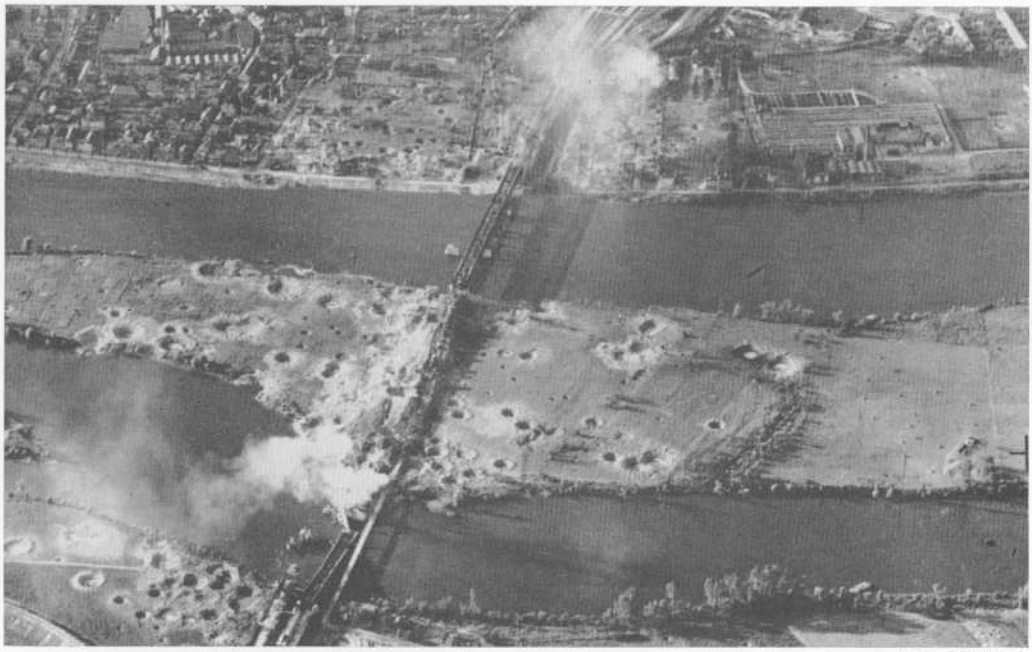
The composite force of 158 aircraft (mainly No. 3 Group) attacking Meerbeck on 20th-21st July lost 20 Lancasters, one squadron alone (No. 75 R.N.Z.A.F.) losing seven. This was a dangerously high percentage, and, in conjunction with the Bottrop losses, may well have called for reconsideration of the method of attack against oil targets. This was, however, an isolated occasion when German defences were outstandingly successful. And the cost, though heavy, was adequately offset because the raid achieved far more than the crews had hoped for or than contemporary Intelligence assessments claimed: the Meerbeck plant was put completely out of production by this single blow.[7] The clear skies which helped German fighters that night also assisted the path-finders, one of whom, Flight Lieutenant Jacobe[8] of No. 109 Squadron R.A.F., was coned by searchlights before releasing his target marker from a height of 32,250 feet. The main-force crews, despite the determined ground and air defences, expressed great confidence in the way their attack developed and some reported a very large explosion with smoke rising to a great height. Nor were the air battles entirely one-sided as three Ju-88's and one Me-109 were claimed as destroyed and four other fighters as damaged.

Wanne-Eickel was the target nominated for a night attack by heavy bombers of No. 4 Group on 25th-26th July. No. 466 dispatched 15 Halifaxes, and the equivalent of about 12 Australian crews operated in the other squadrons engaged on this raid.[9] Twenty aircraft failed to find

[7] There were further raids against Meerbeck, as described later, but in retrospect these appear to have been more frequent than necessary to keep the plant inoperative. The air-raid statistics maintained at Meerbeck show that on this night only some 25 tons of bombs actually fell inside the true plant perimeter. This represented only 3½ per cent of the bombs actually dropped but this was sufficient, according to the same source, to destroy or heavily damage no less than 80 per cent of the total plant. The management estimated that reconstruction would take months. No production was possible until these repairs had been completed.

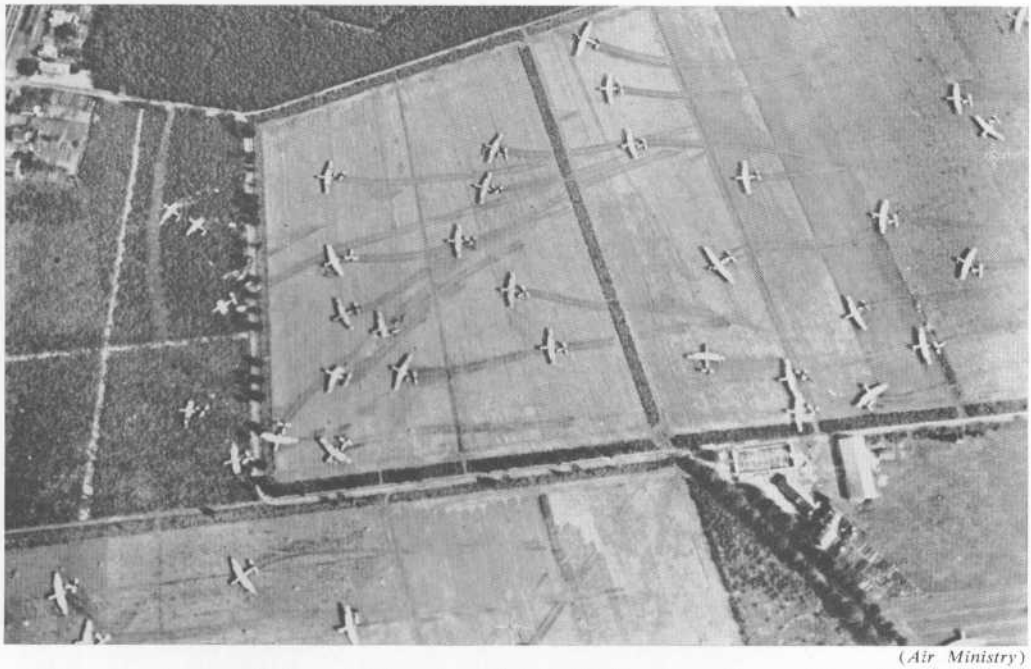
[8] F-Lt L. C. Jacobe, DFC, 401310; 109 Sqn RAF. Salesman; of Elwood, Vic; b. Hawthorn, Vic, 2 May 1917.

[9] There were 13 Halifaxes piloted by Australians sent out that night by Nos. 102, 158 and 640 Squadrons alone and Australian pilots flew in smaller numbers with other squadrons, but rarely did any of these crews contain more than three RAAF members.



(*Air Ministry*)

After the railway bridge at Oissel, south of Rouen, had been made impassable to rail traffic by R.A.F. attacks, the Germans used the existing eastern span as a road bridge and built a long ramp alongside the wrecked part of the bridge declining to the western bank. In this photograph, taken by an aircraft of Second T.A.F., a burning vehicle on the improvised bridge is holding up a stream of German traffic, while ahead roads and tracks are clear.



(*Air Ministry*)

This reconnaissance photograph taken by a R.A.F. Spitfire shows Horsa gliders lying at the ends of the tracks they made during the landings by the First Allied Airborne Army in Holland on 17th September 1944. Some of the fuselages have been detached for quick unloading.



(*Air Ministry*)

Burning vehicles at the crossroads at Conde-sur-Noireau after attacks by fighter-bombers in August 1944. Note the tank tracks in the fields.



(*Air Ministry*)

Falaise after the attack by Bomber Command on the night of 12th-13th August 1944. The road to Paris is seen at "A".

the primary target and those which reached Wanne-Eickel early in the raid found the target obscured by haze, and a somewhat scattered pattern of target indicators. The situation improved as the pathfinders refreshed the bombing markers, and the later stages of bombing were well concentrated and led to a series of heavy explosions at short intervals. Ground guns were active and several aircraft were hit and damaged but all returned safely. German fighters were seen en route but there were no combats. This lack of aggression was ascribed partly to the cloud which gave intermittent cover to the bombers and partly to the successful use of a new type of Window designed to jam the long-wave-length search radar in German fighters.

Within a week Bomber Command, at varying cost, had thus dealt effective blows against five of the ten synthetic oil targets for which it was responsible in Germany. Similar action could not be taken against the other five because at long last the stalemate at Caen had ended and the battlefield in France was again the centre of attention. Apart from purely tactical missions Bomber Command shifted the emphasis of attack against enemy oil resources from crude production centres to the depots and refineries in occupied countries whose stocks and facilities might be of use during the battle then raging. The first two attacks both against the important oil refinery and storage depot at Donges actually took place on 23rd-24th and 24th-25th July in the same week as the attacks against German production units. There was a lull until 4th August but then, within 15 days, Bomber Command mounted 19 separate attacks against 14 targets. The forces employed varied from 15 aircraft to over 200, aggregating 2,260 sorties (including the raids against Donges). Almost 10,000 tons of bombs of which fewer than 100 tons were incendiary bombs were cascaded ruthlessly and with precision against these targets. These depots and refineries were protected by guns which on occasions put up a defiant rather than an effective anti-aircraft barrage. The German Air Force was unable either by night or day to prevent these raids and during the whole series only 10 aircraft (0.44 per cent) were lost from all causes. Under such conditions the master-bomber technique of controlling attacks gave admirable results, and in general destruction was on a large scale, the Germans being deprived of vast quantities of oil products as well as invaluable facilities for its handling, treatment and storage over a wide area from the Biscay coast to the Ghent canal.

Of the *Article XV* squadrons only Nos. 460, 463 and 467 joined in the campaign against oil in this period. Assignments were fitted in according to weather conditions and other urgent battle commitments. In all, the Australian squadrons sent 150 Lancasters on 8 of the missions, while individual Australian aircrew had some part in every raid of the series. Many of the experienced crews regarded these attacks as little more than training missions, with tension lowered and an opportunity present to experiment with new techniques; for new crews they were an opportunity to bridge the gap between the academic and the real, to sense the chilling yet invigorating rhythm of a coordinated Bomber Command attack in

easy stages. In fact the R.A.A.F. squadrons suffered no loss on these raids, but, although relatively easy in nature, the series inevitably gave opportunities for demonstrating a high degree of airmanship. At Donges on 24th-25th July and at Chatellerault on 9th-10th August many aircraft remained over the target for a longer period than normal, which greatly increased the risk of collisions. On several raids, both in daylight and at night, many crews bombed from as low as 7,000 feet in order to achieve accurate results. The light flak defences of many targets made this risk justified but some targets particularly Bordeaux and La Pallice had much stronger gun defences.

In each of the three attacks against Bordeaux one or more Lancasters piloted by Australians were badly damaged. On 13th August Pilot Officer Lorimer[1] of No. 50 Squadron, during his first operation as a captain of aircraft, was approaching the target at an altitude of 17,000 feet when his Lancaster was hit by gunfire. The elevator controls, hydraulic system and bomb-doors were damaged and first the starboard-inner and then the port-inner engine caught fire. Both engines were stopped and the fire in the starboard-inner was put out but the port-inner continued to burn. Lorimer headed northwards from the target area, losing height steadily, and, when about 10 miles off Pointe de la Coubre, the fire in the port-inner increased and he turned towards the shore. The aircraft was practically uncontrollable and down to about 4,000 feet by the time the shore was reached so Lorimer called the crew forward and ordered them to bale out. He followed them, leaving the aircraft at about 1,000 feet, and landed in a small clearing in the Foret de la Coubre.

The first crew member to leave the aircraft landed on the beach and was captured immediately; the others were taken within five or six hours. Lorimer was chased by German troops during most of the first night and moved very little during the next two nights as there seemed to be a great deal of activity in the area. He then headed inland away from the coastal area, travelling at night, and finally, after spending a day at a farm-house, made contact with a pharmacist in a village north of Royan who hid him for three weeks. He then went to Saintes where he met men of the Resistance Army, and after five or six days with them continued on to Cognac and then Angouleme. He headed north from Angouleme, met an American patrol and was driven to Paris, arriving on 25th September and returning to England three days later.

On the same night (18th-19th August) that the campaign against storage depots ended, with the second raid on Reime-Ertvelde, Bomber Command resumed the interrupted attacks against the synthetic plants in the Ruhr. The first target chosen was Sterkrade-Holten which had been left unmolested since June. Sixteen Halifaxes of No. 466 were in the force of 234; bombers and crews reported a fairly uneventful trip with considerable cloud along the route, few actual combats with enemy aircraft, and less intense ground opposition at the target than usual. Some

[1] F-O P. D. A. Lorimer, 424773; 50 Sqn RAF. Jackeroo; of Narrandera, NSW; b. Narrandera, 10 Mar 1924.

damage to the power station, catalyst plant and ovens was confirmed by later reconnaissance, so that further attack was deferred until late in September. Two daylight raids against Sterkrade on 27th and 30th September were both unsuccessful, each being spoilt by the presence of thick cloud, and the majority of crews were forced to bomb alternative targets of opportunity in the general area. As was to be emphasised again and again weather proved a far more effective defence for the synthetic plants than did fighters or guns.

No. 4 Group was out again on 27th August for a repeat attack against Homberg-Meerbeck. The force of 243 aircraft was the largest yet committed by Bomber Command against a single oil objective. The raid was made in daylight, a revolutionary move soon to become standard practice, and, in addition to a heavy fighter escort, the bombers were accompanied by one Mosquito detailed to make an immediate bomb damage survey. From an Australian viewpoint the attack was also memorable as the first operation over Germany of the newly re-formed No. 462 Squadron. Indeed, perhaps the most outstanding display of determination and airmanship arising from the raid was given by Flying Officer Lane[2] of that squadron. The port-outer engine of his Halifax failed in the early stages of the outward journey, before the enemy coast had been crossed. Lane decided to continue even though he would have to fly his aircraft at a much lower level than the main force. Over Homberg the Halifax not only received special attention from the gun defences but was also in danger from bombs cascading from aircraft at higher altitudes. A second engine was disabled by gunfire and, as the primary target was at that time obscured, Lane dropped his bombs on docks on the east bank of the Rhine.

Throughout the raid there was five to seven-tenths cloud with tops at between 5,000 and 8,000 feet so that, although a few crews reported that they bombed through clear patches, most had to unload at ground markers which tended to be obscured by defensive smoke and bomb bursts. At least one large explosion was seen which sent up a column of thick brown smoke. These conditions were not satisfactory for the reconnaissance Mosquito, but the general feeling among returning aircrew was that the raid had been successful. It had also proved to be a surprisingly easy trip, the only Australian other than Lane to strike trouble being a pilot of No. 158 Squadron who brought back his aircraft, although badly damaged over the target, to a safe landing at an emergency airfield in England.

In vivid contrast to the night raid of 20th-21st July no aircraft were lost by Bomber Command in the 27th August raid on Homberg. This was largely due to the absence of enemy fighters, and this in turn reflected not lack of aircraft but the acute shortage of aviation gasoline brought about by earlier raids. Some of the 100 anti-aircraft guns which had previously guarded this plant had also been temporarily redisposed to protect plants elsewhere which were still in operation. This inability to

[2] F-Lt A. W. Lane, DFC, 22873. 466 and 462 Sqns, 96 Sqn RAF. Clerk; of Newmarket, Qld; b. Toowoomba, Qld, 24 Apr 1919.

defend its oil installations adequately put the Germans in a continuing dilemma. With the Rumanian oilfields gone and the Polish oilfields and refineries about to fall to Russian armies, only an optimum output from domestic capacity could keep the *Wehrmacht* in the field; but until stocks of aviation fuel could be built up it was impracticable to make other than regular token or irregular full-scale opposition to either American or British air raids. Tremendous civil engineering resources were being poured into the reconstruction of damaged plants and the expansion and dispersion of new production facilities as called for by the Geilenberg plan: the genius of Speer and the organisation of Todt attempted to redress the balance. But while bombing forces could come unchallenged to attack installations which were very susceptible to blast, the position of German oil resources would be precarious. Results of the raid on the 27th August, as noted by German authorities at the time, gave them no room for optimism. Although less than 5 per cent of the bombs dropped fell inside the plant, water-gas generators, gas-purification plants, a reactor house, pumping installations, the power house and pipe-lines were all heavily damaged. Reconstruction of the plant was estimated to have been delayed by at least one month.

During September 1944 Bomber Command mounted 11 day-raids against Ruhr synthetic oil plants. This activity came in two short bursts and there were no night raids. Kastrop-Rauxel, Kamen and Nordstern (11th September); Wanne-Eickel, Dortmund and Buer (12th September); and Nordstern (13th September) were the targets during the first phase of operations, which was designed to profit from concurrent widespread Eighth Air Force attacks against its own list of oil targets at Bohlen, Brux, Magdeburg and Misburg. For six consecutive days from 8th September more than 1,000 American bombers raided Germany, and on 11th September the German Air Force rose in full strength for the first time since 28th May. Heavy air battles also occurred on each of the two following days, but, although Bomber Command lost 7 aircraft in the first Nordstern raid and 4 over Wanne-Eickel, the total losses of 18 aircraft from all causes out of the aggregate of 945 employed in the 7 attacks was by no means severe. The general reaction from crews was greater confidence in the practicability of daylight attacks against Germany. All the attacks bore promise of substantial success except the 11th September raid on Nordstern; and this accounts for the repeat attack two days later.

Australian contribution to the September air campaign against oil installations was not very high, only Nos. 462 and 466 operating twice against Buer and Nordstern on 12th and 13th September. Australian fighter pilots among the escorts for these day raids averaged 10, or nearly one squadron, on each occasion, although they actually flew in scattered units. Similarly when an opportunity arose at the end of September to attack Bottrop and Sterkrade, R.A.A.F. squadrons (again Nos. 462 and 466) flew only in the second attack on Bottrop. These late September raids all failed because on both 27th and 30th September there was heavy

cloud over both objectives and master bombers were unable to provide any clear pattern of target markers. The influence of weather on the oil campaign was strikingly evident when analysis of crew reports on 30th September showed that only 24 out of 139 crews of No. 6 R.C.A.F. Group claimed an attack against the primary target at Sterkrade while, of 136 Halifaxes sent by No. 4 Group to Bottrop, only four claimed an attack. The 14 crews of No. 462 attacked targets of opportunity in the Ruhr as did all except one of the 15 crews of No. 466.

Remote from the committees which thrashed out the policies of strategic bombing or the cabals which set them in motion against an ever-changing situation on the ground, the individual Australian aircrew member, whether with a R.A.A.F. or R.A.F. squadron, was too close to the kaleidoscope pattern of day-to-day operations to appreciate the full significance of the "Oil Plan". Many were far more concerned with their own crew training, the study of technical proficiency in attack, and the appraisal of enemy defences, than with the selection of target systems. The Bomber Command interpretation of the POINTBLANK objective—"the progressive destruction and dislocation of German military, industrial and economic systems"—with its marked bias towards morale bombing of industrial cities, was accepted without question because it had been the focal point of training since the individual joined his first Bomber Command training unit. Aircrew were avid readers of Intelligence summaries, but these again were prepared by Bomber Command and, though faithfully reflecting the undoubted successes against the limited number of Ruhr oil targets attacked up to the end of September 1944, the campaign against German fuel resources appeared to many to be opportunist in character and ancillary to the main aim of attacking German cities.

This did not result in any lack of fervour in attack. Harris had built up Bomber Command into a large, well-drilled, well-equipped attacking machine. Squadrons and groups vied with each other to demonstrate superior ability to attack any kind of target allotted to them and in recent months had become accustomed to spending 80 per cent of their effort on other than area targets. Many of these diversionary tasks, emergent from the invasion of France, had been glitteringly successful, and in some aspects such as daylight and precision bombing had revealed undreamt of capabilities. Operational losses had been light, Bomber Command bases were untroubled by enemy attacks and there were ample trained crews, aircraft and supplies of all kinds on hand. Bomber Command had tasted success and had the utmost confidence in its powers to take a decisive part in the final defeat of Germany. Thus, when the news filtered down to units late in September 1944 that the command of the strategic bomber forces was to revert from SHAEF control to that of the Combined Chiefs of Staff, most Australians assumed that this would lead to a greater degree of concentration by Bomber Command on area targets.

In fact the first directive issued by the Combined Chiefs of Staff after resuming control of the strategic bombers was a restatement on 23rd September of a policy of attack against spot rather than extended targets.

The German petroleum industry with special emphasis on petrol itself and petrol storage facilities was ranked as first priority. As equal second priorities were the enemy rail and waterborne transport systems; armoured-vehicle production and storage capacity; and motor-transport plants. A rider to this directive promised that all SHAEF requirements for direct support tasks would be promptly fulfilled. Only when weather or tactical conditions were unsuitable for action against the stated primary objectives were area attacks authorised.[3] Nor did oil as a stipulated target lose its priority during the remainder of 1944. Two very large-scale operations (Hurricane I and Hurricane II) were projected for mid-October, when the Eighth and Fifteenth Air Forces, together with Bomber Command, were to concentrate all available bombers against the Ruhr, not only to cause widespread material damage but also "in order to demonstrate to the enemy in Germany generally the overwhelming superiority of the Allied Air Forces in the theatre". It was specifically provided, however, that "these operations will not be to the prejudice of any operations which can be delivered effectively on oil targets in Germany generally". The American air commanders were very lukewarm concerning the Hurricane plan, which was finally shelved. The only other major directive issued in 1944 came on 1st November when primary objectives were listed as the petroleum industry and German lines of communication. The object of strategic bomber policy was defined as a "maximum effort against the petroleum industry, oil supplies and storage". Important industrial areas could be attacked as alternatives only when weather or tactical conditions were unsuitable for primary targets.

The policy of concentration against enemy oil resources was thus quite clear and arose from the realisation that, whereas by September 1944 German stocks had been heavily depleted by the needs of the summer campaigns, her major natural resources in Rumania had been overrun by Russian armies, and her synthetic plants had been temporarily nullified by bombing, very energetic action would be required to gain the greatest benefit from the advantage thus created. The shortening of German lines both on the Eastern and Western fronts and the ground stalemate that existed because Allied forces had themselves outpaced their supply organisations gave Germany a chance to conserve stocks. The Allies were only too well aware of German efficiency in repairing industries vital to their needs; despite all the effort put into the bombing attacks against the German aircraft industry it had continued to expand; in Germany and France the enemy had shown skill and pertinacity in repairing broken communications and damaged airfields time and time again after bombing. Should the same effort be devoted to the shattered oil plants then they might be partially or completely restored within a matter of weeks.

[3] This directive was framed by General Spaatz and Air Marshal N. H. Bottomley (delegates for General Arnold and Marshal of the RAF Sir Charles Portal). It did not satisfy Harris who had no more desire for Air Ministry to dictate his choice of target than for SHAEF to do so. An exchange of letters between Harris and Air Ministry requesting clarification of the control of strategic bomber forces reached a formula on 15th December 1944 by which operational instructions to be issued to Harris on behalf of the Chief of the Air Staff were limited to the strategic offensive; tactical direction of operations was to be Harris' responsibility.

Moreover, European weather in late autumn and early winter hampered deep penetration raids into Germany and gave natural protection to the targets themselves. Finally German defence measures including intelligent use of dispersion, camouflage and smoke techniques, as well as an ever-increasing number of anti-aircraft guns, were being hastily improved.

In the event weather was the overriding factor in the campaign against oil during the last quarter of 1944. In October the Eighth Air Force, eager though it was to pursue this aim, found that only four days were suitable for attacking its allotted targets. From Italy the Fifteenth Air Force operated against installations in southern Germany and Austria six times. Bomber Command, striking only at the Ruhr, began well, with raids against both Scholven-Buer and Sterkrade on 6th October, but managed only four more attacks in the rest of the month. It was not only the raids which were impeded but photographic reconnaissance also and this led to some indecision as to the true need for repetitive attack. In turn this indecision bred a policy of attack and re-attack whenever possible despite the risk of some wasted effort. This urgency led to special efforts during November when the Eighth Air Force operated on 13 days, the Fifteenth on 7 and Bomber Command on 11 day and 5 night missions. Before the end of November Bomber Command was actually outstripping, in terms of tons of bombs on oil targets, the American air forces which had been the proponents of the plan. Indeed all the 10 synthetic plants in the Ruhr were assessed as inoperative by 30th November, and by this time the Air Ministry had agreed to share some of the burden of attack not only against the distant Politz and Leuna-Merseburg targets previously battered by the U.S.A.A.F. but also against a number of benzol plants which had hitherto not been attacked but were now recognised as providing a significant percentage of current German production. During December only the Fifteenth Air Force could maintain a steady effort against its allotted targets; the Eighth mounted only three raids and Bomber Command only five, because the desperate German ground offensive launched towards the Ardennes in mid-December immediately caused the substitution of tactical for strategic roles for the bombers.

In September 1944 German actual production of aviation gasoline (90 per cent of which came from hydrogenation plants) was down to less than 5 per cent of planned production; motor-transport fuel output was 43 per cent of planned production and diesel oil output was 50 per cent. In the next three months the Eighth Air Force cascaded 22,602 tons, the Fifteenth 15,646 tons and Bomber Command 22,770 tons of bombs against the oil industry. Despite the strenuous efforts made by Germany, her aviation fuel output rose only to 8 per cent of planned production in October, 22 per cent in November and 11 per cent in December. Production of motor-transport fuel remained fairly static at 45 per cent of required output, and only diesel fuel showed any substantial recovery, rising to 70 per cent by the end of the year. Such was the broad picture of the struggle between bombing and reconstruction agencies. The strategic bombers were not able to prevent the Germans gathering sufficient fuel

stocks to launch the Ardennes venture but they had almost certainly ensured there was not enough to maintain it for long. Not only did the critical shortage hamper the German armies and the *Luftwaffe,* but it entailed drastic rationing of industrial fuel supplies with a consequent effect on production of urgently needed war materials.

Bomber Command's contribution to the oil campaign was noteworthy in that only five of its 20 attacks against the Ruhr plants in the last quarter of 1944 were at night. Some daylight raids were mounted in good weather using normal pathfinder and navigation techniques, but it was the ability of No. 3 Group (whose Lancaster squadrons were receiving a steady proportion of aircraft equipped with G-H) to operate in weather hitherto regarded as impossible which permitted pressure to be maintained until the full list of Bomber Command targets in this area had been "neutralised". The G-H system could handle up to 80 aircraft at a time; it had a range of the order of 250 miles, and as a precision blind-bombing device could achieve an accuracy of a quarter of a mile. It was thus very suitable for the medium-sized forces used against the Ruhr, and by flying in formations of three aircraft of which only the leader would have G-H, a consistently high standard of bombing was practicable.

Although to Australians in No. 3 Group there was, during the three winter months of late 1944, a definite pattern observable in the oil attacks, the R.A.A.F. squadrons proper each mounted only two or three oil raids in the same period, and these were so dispersed in time as to appear as just another chore for Harris' great maid-of-all-work, Bomber Command.

The two Driffield squadrons, Nos. 462 and 466, made only two attacks. Both were against a single target, Sterkrade-Holten, the first being in daylight on 6th October 1944 and the second at night nearly seven weeks later on 21st-22nd November. This Fischer-Tropsch plant had escaped any crippling damage in two daylight attacks on 27th and 30th September and was correspondingly high on Bomber Command's priority list when temporarily good weather on 6th October encouraged No. 4 Group to make a carefully-prepared attempt to put Sterkrade-Holten out of action. The bombing force of 126 Halifaxes (33 from Driffield) was backed up by no fewer than 23 Lancasters and 10 Mosquitos of No. 8 P.F.F. Group to ensure if possible that, irrespective of local conditions, there would be well-laid target markers. Heavy fighter protection mainly by Spitfire squadrons was provided to prevent the enemy from attacking and dispersing the force in time and space during the outward journey and thus preventing them from reaching or identifying the small target in time to attack. Both factors, together with the absence of cloud, worked in favour of No. 4 Group on 6th October, and the bombers were not molested by fighters but appeared compactly and on time over Sterkrade to see a good pattern of markers. Many crews were able to identify the oil plant visually in relation to the markers and there was a notably high proportion of target photographs obtained at the moment of bomb release, 13 crews of No. 462 and 11 of No. 466 returning with this evidence to

confirm their efforts. More detailed later reconnaissance showed a heavy concentration of damage in the north-west area of the plant where the compressor house, ammonia-synthesis building, catalyst and research sections were all hit heavily.

This well planned and executed raid was also marked by increased German ground gun defences, a sure sign of enemy appreciation of the importance of the target. Over 70 per cent of the Halifaxes were hit by gunfire, and although only three bombers were actually shot down, others struggled home with great difficulty. There were many acts of creditable airmanship which reflected the long, thorough training arrangements of Bomber Command as well as the buoyant determination and enthusiasm which was the basis of crew spirit at this time.

The night raid against Sterkrade on 21st-22nd November was described by returning crews as uneventful. There were few fighters and only moderate flak to harass the larger force of 270 bombers. Nos. 462 and 466 each dispatched 15 aircraft, and although one from each squadron returned to base without bombing because of engine trouble the rest delivered a load of 106 tons of bombs (out of 870) in a raid which spread damage fairly evenly throughout the plant.

The two R.A.A.F. squadrons at Waddington in No. 5 Group set out in daylight on 1st November to bomb the Meerbeck plant at Homberg but only one of the 36 Australian Lancasters claimed any attack. There was a discrepancy with regard to timing, and cloud conditions were more unfavourable than had been expected. Early arrivals, most of whom brought their bombs back, either failed to see the P.F.F. markers because of the clouds or had overshot the target before marking began. Because of inability to identify the precise target, the Australians had to run the gauntlet of very active and widespread gun defences and six Lancasters of No. 463 and 11 of 467 received some damage. Later waves of No. 5 Group aircraft did drop their bombs, but crews were far from optimistic that any real damage would result.

This failure by No. 5 Group followed a not very successful raid by No. 6 Group on 25th October. The target was then allocated as the responsibility of No. 3 Group since it lay within G-H range and precision radar-bombing offered some hopes of success whereas visual daylight bombing had twice failed against this oil key-point. Attacks were made on 2nd November, 8th November, 20th November and 21st November, by which time the cumulative results of bombing justified removing Homberg from the active priority list. Altogether in the six raids within less than a month 1,148 bombers had been dispatched by Bomber Command and 5,286 tons of bombs expended; 15 bombers were shot down during this series. This relatively large expenditure of effort was justified by the importance of the Meerbeck plant.

Within a fortnight of their disappointing attack on Homberg, the Australians in No. 5 Group made a night raid on 11th-12th November against two refineries at Harburg, south of Hamburg. No. 463 provided 14 and No. 467 19 Lancasters on this occasion, while more than 20

of the other aircraft in a total force of 245 were piloted by Australians. To pilots of No. 463 this was an uneventful routine duty, conducted in fair weather with two thin layers of stratus cloud beneath the bomber stream. Some fighter flares were seen while crossing the Heligoland Bight and there was fierce ground gunfire in the vicinity of the target. But the raid was one of minimum penetration of enemy territory and pilots who arrived in the first wave of bombers found the target well marked and were able to bomb and turn for home without delay. Crews of the other Waddington squadron, No. 467, had a less fortunate night; they lost two Lancasters and a third piloted by Flying Officer Kynoch[4] was first damaged by flak during the run up to the target and then subjected to two attacks by fighters as it turned for home. Although the Lancaster was further badly damaged by the second fighter attack, Kynoch, with the assistance of his bomb aimer, Flying Officer Chalk,[5] safely flew it to an emergency airfield in the United Kingdom. A similar feat was performed during the same raid by Flight Lieutenant Cornish[6] of No. 83 Squadron. Indeed, although many crew reports echo the opinion of No. 463 that this was an uneventful raid, the loss of 7 Lancasters out of 245 was actually the highest percentage lost on any oil raid during the three winter months of 1944.

The R.A.A.F. squadrons in No. 5 Group were not rostered for a further oil raid until nearly six weeks later when, on 21st-22nd December, Nos. 463 and 467 each contributed 17 Lancasters to a force of 207 bombers which attacked Politz. This was nominally an Eighth Air Force commitment, but the Americans had either been weathered in at their bases or forced to concentrate on tactical duties or other target priorities since their very successful raid in October which had temporarily put Politz out of action. The attack late in December was considered essential because of its possible reaction on the outcome of the Ardennes offensive, Politz then being the largest German oil plant considered capable of maximum production. The long flight to Stettin even in December presented few problems to No. 5 Group because of the partial breakdown of enemy air-warning systems. The main force in fact reached the Politz area compactly and in accordance with the careful flight plan to find itself favoured with clear skies and only a slight ground haze.

Even though a small spoof raid by six aircraft (also from No. 5 Group) against Schneidemuhl to the south of Stettin was too late and too weak to act as a real diversion, there was little enemy opposition. Flak opposition was less than expected and, although one crew of No. 463 had abandoned the mission because of aircraft unserviceability during the outward route, the remaining 33 Lancasters from Waddington had no difficulties during their bombing runs. The opinions of the crews, however, were

[4] Sqn Ldr W. M. Kynoch, DFC, 419657; 467 Sqn. Commercial artist; of East St Kilda, Vic; b. Aberdeen, Scotland, 28 Jul 1914.

[5] F-Lt J. A. Chalk, 419946; 467 Sqn. Clerk; of Glen Huntly, Vic; b. Melbourne, 23 Nov 1917.

[6] F-Lt P. C. Cornish, DFC, 410458. 49 and 83 Sqns RAF. Traveller; of Glen Iris, Vic; b. Armadale, Vic, 4 Aug 1918.

rather contradictory concerning the results of the attack: some thought it had been concentrated, others were disappointed. Similarly divergent views were expressed at debriefing by Australians operating that night with Nos. 44, 57, 83, 97, 619 and 630 R.A.F. Squadrons and a consensus seemed to point to a moderately successful attack. Later evidence from analysis of night photographs taken during the raid showed that the markers were offset by approximately one mile from the true aiming point, but post-raid reconnaissance aircraft were able to discern serious damage in the power station, water-gas plant, carbonising ovens and a gas-holder.

Meanwhile No. 460 Squadron made its first contribution to the oil campaign by a daylight raid on 9th November against the Fischer-Tropsch plant at Wanne-Eickel, which was estimated as fully recovered from a heavy blow made by No. 6 (R.C.A.F.) Group on 12th October. Twenty-three crews left Binbrook at 7.30 a.m. to be over the target three hours later but it was a disappointing morning. Cloud up to a height of 21,000 feet swirled around the bomber force when it neared Wanne-Eickel. The target markers dropped by Mosquitos were completely hidden in the overcast and, although nearly 1,300 tons of bombs were dropped, the lack of G-H inevitably meant that bombing was scattered. One conscientious Australian wireless operator, making his 13th raid within 5 weeks with a crew of No. 550 Squadron R.A.F., wrote disconsolately in his diary: "It was a very poor show all round." This sentiment was echoed in varying degree by many other Australians who were back at their bases soon after lunch, tired but without the stimulation of combat or confidence in their bomb aiming. R.A.A.F. pilots of the Mustang and Spitfire escort from Nos. 19, 41, 122, 124, 126, 129 and 234 Squadrons R.A.F. found no enemy to deter, but were more philosophically inclined than the Bomber Command crews who had been nurtured on a doctrine of excitement and success. Indeed, even in such a comparative failure for Bomber Command there were inevitable minor and personal triumphs. One Lancaster of No. 460, stricken by anti-aircraft fire over the target, not only completed its bombing run under the control of its severely injured pilot, Flying Officer Owen,[7] but was then piloted back to base in deteriorating weather by a relatively inexperienced but indomitable bomb aimer, Pilot Officer Woods,[8] so that Owen, in severe pain and weak from loss of blood, was then able to land the aircraft safely.

No. 1 Group squadrons returned to Wanne-Eickel on 18th-19th November determined to succeed at night where it had failed by day. A slightly larger main force of 253 Lancasters was accompanied by no fewer than 56 pathfinder aircraft. Although weather at base was poor, conditions improved as forecast over the Continent and crews of No. 460 found the target area without difficulty. They reported that target indicators were plentiful and well placed so that a rhythmic concentrated attack was well under way when they arrived. Numerous explosions were noted and

[7] F-Lt E. C. Owen, DFC, 409435; 460 Sqn. Foreman; of Warrnambool, Vic; b. Warrnambool, 26 Jun 1916.

[8] F-O L. W. Woods, DFC, 408463; 460 Sqn. Clerk; of Hobart; b. Deloraine, Tas, 26 Dec 1922.

crews of all squadrons reported that the glow of fires could be seen up to 70 miles away.

The tendency towards larger bombing forces and a much higher proportion of pathfinder aircraft to main force for oil attacks during winter months was again apparent on 6th December when a late evening attack was made by No. 1 Group against the Leuna plant at Merseburg. This, like Politz, had originally been designated as a target for the U.S.A.A.F., but repeated attacks had failed to put it out of action, and it was becoming increasingly difficult for American daylight forces to keep up their attack. As an individual target it was much larger and more important than any of the original Bomber Command list. It was much farther away than the Rhenish synthetic plants and it was very well defended by ground guns. No. 1 Group provided 291 Lancasters, No. 3 Group 123 Lancasters and No. 8 P.F.F. Group 71 Lancasters and 12 Mosquitos for the record force of nearly 500 aircraft dispatched against a single oil target. The 24 crews of No. 460 Squadron and the 46 crews captained by Australians from other squadrons set out late in the afternoon for a four-hour flight to the target in conditions of dense cloud and sub-normal temperatures which so frequently found out the weak spots in both machine and man. Most of them agreed on return that the skymarkers laid by P.F.F. in ten-tenths cloud were plentiful and well grouped. Pilots of No. 460 who bombed at heights ranging from 17,000 to 20,000 feet were less hopeful than others that the well-grouped target indicators were in fact well placed; they feared that the main concentration of bombs would fall away from vital parts of the plant.

The relative absence of fire and smoke after bombing resulted in cautious claims, especially so as the force had passed almost directly over Giessen which was burning furiously after an attack timed for 45 minutes earlier than the Leuna raid. Final assessment of damage was in fact difficult because, when reconnaissance photographs were finally obtained, they covered not only the Bomber Command but three U.S.A.A.F. attacks. These photographs revealed that the Germans had made considerable progress with repair and reconstruction; evidence although not conclusive tended to show that Leuna had been reduced to almost one-third of its potential. The Bomber Command raid had more than justified itself. It had also stung the *Luftwaffe* into a higher level of fighter activity than was normal at this time. Many combats were reported and although four Lancasters (including one of No. 460) failed to return, air combats were not one-sided. Flight Sergeants Andrews[9] and Hammond[1] of No. 460 and Flight Sergeants O'Brien[2] and Johnson[3] of No. 576 by good gunnery fire-control probably destroyed enemy fighters which attacked their aircraft.

[9] W-O J. R. Andrews, 439636; 460 Sqn. Railway porter; of Croydon, NSW; b. 9 Nov 1924.
[1] W-O T. G. Hammond, 431175; 460 Sqn. Storeman; of Caulfield, Vic; b. Northcote, Vic, 9 Apr 1925.
[2] F-O L. C. O'Brien, 32604; 576 Sqn RAF. Woolclasser; of Earlwood, NSW; b. Sydney, 2 Jun 1914.
[3] P-O A. N. Johnson, 433062; 576 Sqn RAF. Carpenter; of West Kempsey, NSW; b. Nambour, Qld, 24 Nov 1924.

No. 460 ended the year with an attack on the Scholven-Buer synthetic refinery at Gelsenkirchen. Previously attacked by No. 4 Group in daylight on 6th October 1944[4] and by the U.S.A.A.F., this plant was one of the most important still in partial production. A relatively large force of 337 aircraft from Nos. 1 and 6 Groups was dispatched on 29th-30th December in clear weather. Punctual well-concentrated marking was maintained by the pathfinders so that main-force crews, unhindered by fighters or flak, could press home a deliberate attack. Explosions and fires were seen through the low thin-lying sheet of stratus cloud below the bombers and one very large explosion sent flames shooting upwards and was followed by a mushroom of black smoke which rose to 12,000 feet. In all 1,625 tons of bombs fell that night on Scholven-Buer, a tonnage exceeded at this stage of the oil campaign only by the Leuna attack earlier in December.

One of the oil targets on Bomber Command's list, Kamen, was not attacked during the last quarter of 1944 because it remained inactive throughout this period as a result of the successful raid during September. As has been seen all other nominated Ruhr targets received one or more attacks until their estimated level of production was reduced sufficiently to remove them from the priority target list. There were undoubtedly failures in Intelligence and failures in interpretation affecting choice of targets, failures in planning and failures in execution of individual raids, but the sum of Bomber Command's effort against oil targets was very impressive. At the beginning of the period the command was reluctant to engage in any oil raids at all—the basic philosophy of the campaign was utterly opposed to the Bomber Command doctrine of concentration on area attacks. Once committed, however, the various groups of Bomber Command competed in finding solutions to the unfamiliar problem (in both a mental and physical sense) of attacking spot targets.[5] The basic list of Ruhr targets was ideal for Bomber Command during the months of summer and autumn. Short trips were made covered by electronic noise or silence screens to confuse enemy defences; very large bomb-loads relative to the size of the attacking force were dropped so that, providing the target was identified, sheer relative weight of attack could "knock out" the active and passive defences of a small spot target. Late autumn and winter, as Speer predicted, brought weather which would enable German industry to recover from the earlier blows. But it was precisely in these months of bad weather that Bomber Command, the reluctant partner, eclipsed U.S.A.A.F., the protagonist of oil attacks, in ability to strike targets under any conditions. Alien as may have been the strategic philosophy, Bomber Command not only kept its own allotted priority

[4] The RAAF squadrons Nos. 462 and 466 had not been included in this force but in one attacking Sterkrade the same day.

[5] No. 1 Group regarded itself as the "old reliables". No. 3 had G-H. No. 4 was ever willing to prove that Halifax units could do equally well as Lancaster units. No. 5 had a record of forceful experimentation in attack to sustain and expand. No. 6 was a compact national group of RCAF squadrons. Competition was keen, and, although cross-fertilisation of ideas was not always in evidence, the general result was enthusiasm and application to the task by crews of all units.

list of Ruhr oil targets (admittedly the minor commitment) virtually out of production, but by December was called in to attack major U.S.A.A.F. targets which that force could no longer reach because of seasonal and tactical considerations. Bomber Command also took responsibility for ancillary oil targets such as storage units and the marginal "last ditch" benzol plants to which Germany looked for essential oil production as her major units were progressively damaged.

Oil was obviously an important but by no means an overriding target for the individual aircrew of Bomber Command. Logs, debriefing reports and private diaries all reflect a marked difference of attitude, both on successful and unsuccessful trips, towards oil and area targets during this period. The Australian airman, no less than his other national comrades in Bomber Command, had been psychologically and physically conditioned during training for a victory through sheer weight of general bombing attack on the German economy. However, while he may not have grasped at that time the precise significance of the oil campaign, the record of each raid amply demonstrates the degree of technical training, the pride, determination and application of individual airmen, crews, squadrons and groups which alone (subject to material problems[6]) permitted such an unprecedented level of endeavour and achievement. Australians played little or no directional role in these matters, but as individual contributors in almost every group effort, and in infinitely changing circumstances, the Australian airmen acquitted themselves well.

[6] Shortage of aircraft, airfields, bombs, navigation aids, transport fuel, pyrotechnics and the thousand-and-one other considerations which could limit operations had by this time been largely solved by Anglo-American supply agencies and by the reallocation of available manpower, planning and procurement facilities in favour of Bomber Command.

CHAPTER 10

THE BATTLE FOR NORMANDY

ON 1st July 1944 the last German resistance on the Cherbourg peninsula was overcome and the Allies were securely entrenched in their lodgement area, which extended from the Cotentin to Caen. The bridgehead was bursting with supplies and men, all of which could not be deployed to best advantage until more ground was won. The Germans although their own build-up was more slow and painful, and although they could not wrest the initiative from the invaders, held a stubborn ring of well-sited defences throughout the difficult bocage country[1] and around Caen which had defied all the peripheral thrusts so far attempted by General Montgomery or General Bradley. There was an imminent danger of a stalemate and some observers began gloomily to compare the situation near Caen with the earlier example of Cassino which had so materially affected Allied plans in the Italian campaign.

In these circumstances air power was once more called upon to provide a solution. Air Chief Marshal Leigh-Mallory had for some time advocated the use of the heavy strategic bombers in front-line ground operations. He now advised General Eisenhower that his medium, light and fighter-bombers could not, in the conditions prevailing, produce an attack of sufficient weight to blast a gap in the German defences so that the Anglo-American ground forces could surge forward and deploy in open country. His strong interest in this matter was not purely one of air tactics and utilisation: he had been bitterly disappointed that Montgomery had failed to secure Caen early in the invasion period and thus control the network of adjacent airfields. Lack of continental airfields was imposing a great strain on the Allied Expeditionary Air Force whose aircraft were often weathered in on English airfields, thus allowing the pertinacious Germans to bring forward sorely needed supplies to their iron ring around the lodgement area. To Leigh-Mallory it appeared that only heavy bombers could provide a sufficient element of surprise and an overwhelming weight of attack to break the deadlock at Caen.

Air Chief Marshal Harris was by no means so enthusiastic. The withdrawal of his heavy bombers from their strategic objectives in favour of any army-cooperation role was not to his liking. Furthermore although during the invasion period his squadrons had shown skill and determination in attacking enemy dumps, strongpoints and troop concentrations behind the actual battlefront, he was doubtful that such attacks could be made in the immediate path of an Allied attack. He was mindful that similar intervention of heavy bombers at Cassino had at times appeared to frustrate rather than help the attackers.

Harris' reservations however were over-ruled because Eisenhower could find no alternative. A conventional attack in strength by the First Ameri-

[1] Sparsely-timbered reclaimed land with its fields divided by massive banked-up hedgerows, each embankment in itself a natural anti-tank obstacle.

can Army towards the Vire River on 3rd July quickly bogged down in swampy country because artillery fire had failed to eliminate German strongpoints which controlled the roads radiating from St Lo.[2] Both Eisenhower and Air Chief Marshal Tedder accordingly agreed that even though there had been obvious faults in the use of bombers at Cassino, better planning and execution of attacks might still sway the balance at Caen.[3] Questions of how near to the Allied front line it was practicable to attack with safety; what type of bomb-load to use against various objectives; whether strongpoints ahead of or on the flanks of the impending break-through should receive priority; cooperation with ground and naval artillery barrages, and optimum techniques of approach, timing and height of attack were all canvassed once the policy decision was taken that Bomber Command would in fact be ordered to assist Montgomery in an immediate frontal attack on Caen.

Originally it was intended that Bomber Command would attack immediately before the ground assault which was timed for 4.20 a.m. on 8th July, but, as happened so often in these unseasonable months, an adverse weather forecast caused it to be brought forward six hours to last light on 7th July. Otherwise than in time the attack proceeded as planned with a bomb-line 6,000 yards ahead of the foremost British troops. The target area was a rectangle two miles and a half by one mile to the north of Caen with two primary aiming points nominated in advance. It was hoped that bombing would destroy or neutralise enemy strongpoints and artillery positions throughout this area while ground artillery and the heavy guns of H.M.S's *Rodney, Roberts* and *Belfast* would cover targets outside the bombing area.

Both No. 460 (20 Lancasters) and No. 466 (14 Halifaxes) flew with the mixed force of 467 bombers drawn from Nos. 1, 4, 6 and 8 Groups to attack Caen. A large force of fighters gave target and withdrawal protection but there was no *Luftwaffe* opposition against the bombers themselves although Squadron Leader Blessing, flying at 32,000 feet in a Mosquito of No. 105 Squadron equipped with Oboe to mark one of the primary aiming points, was attacked and his aircraft was badly damaged. He broke away and attempted to land at an emergency landing-field behind Allied lines, but, although he maintained sufficient control for his navigator to escape by parachute, the Mosquito suddenly went into a violent spin at low altitude and disintegrated; Blessing who had proved himself one of the most determined and skilful of R.A.A.F. pilots in Bomber Command was killed.

The loss of one Oboe Mosquito, however, did not affect the meticulous way in which the large force present from No. 8 P.F.F. Group (64

[2] General Bradley had 14 divisions available against barely half that number of German composite units, but he had no room to deploy his armour which could not travel cross-country.

[3] General Wilson had ordered Allied Force H.Q. Mediterranean to make a careful study of the Cassino operations between 15th-25th March 1944. On 4th June he issued a general training memorandum highlighting the lessons from both the ground and air viewpoint. The conclusion stated: "Cassino is not an indictment of the value of heavy bombers in close support of the Army. Their ability to land a knock-out blow, without warning, is still an advantage which no other form of attack enjoys, but it must be realised that there are limiting and controlling factors for this as with all other types of fire support."



(*R.A.A.F.*)

The cathedral at Coutances stands practically undamaged amid wrecked buildings. The town was the scene of heavy fighting before the fall of Cherbourg on 26th June 1944.



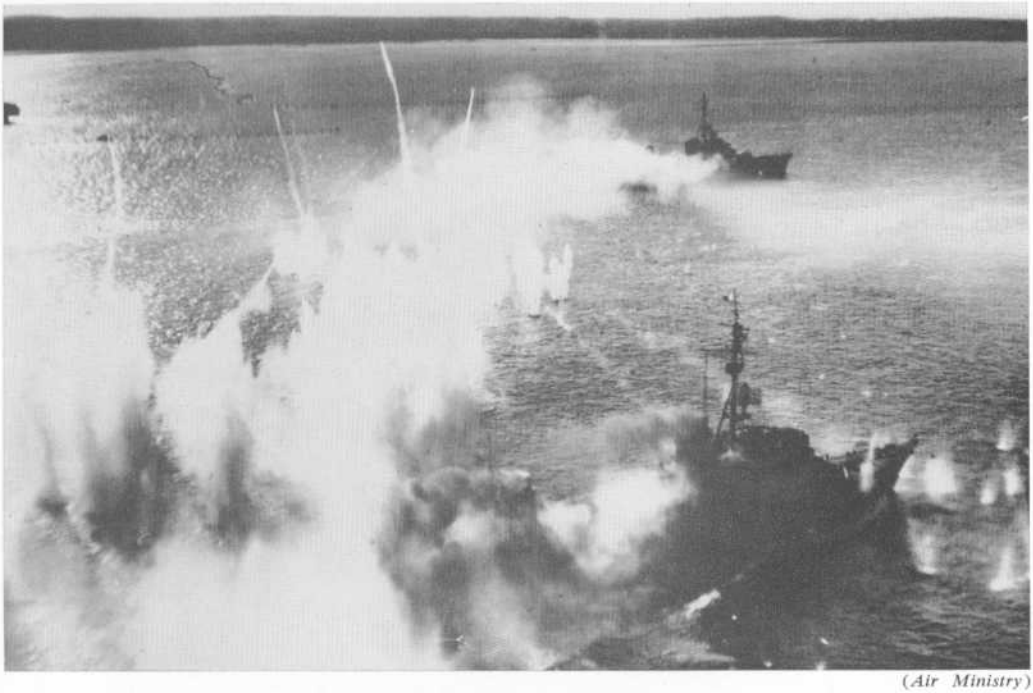
(*Australian War Memorial*)

Mimoyecques, in the Pas de Calais area, believed to be an A-4 firing site, was the target for 15 Halifaxes of No. 466 Squadron among the force of 130 bombers on 6th July 1944. During the attack 456 tons of bombs were dropped.



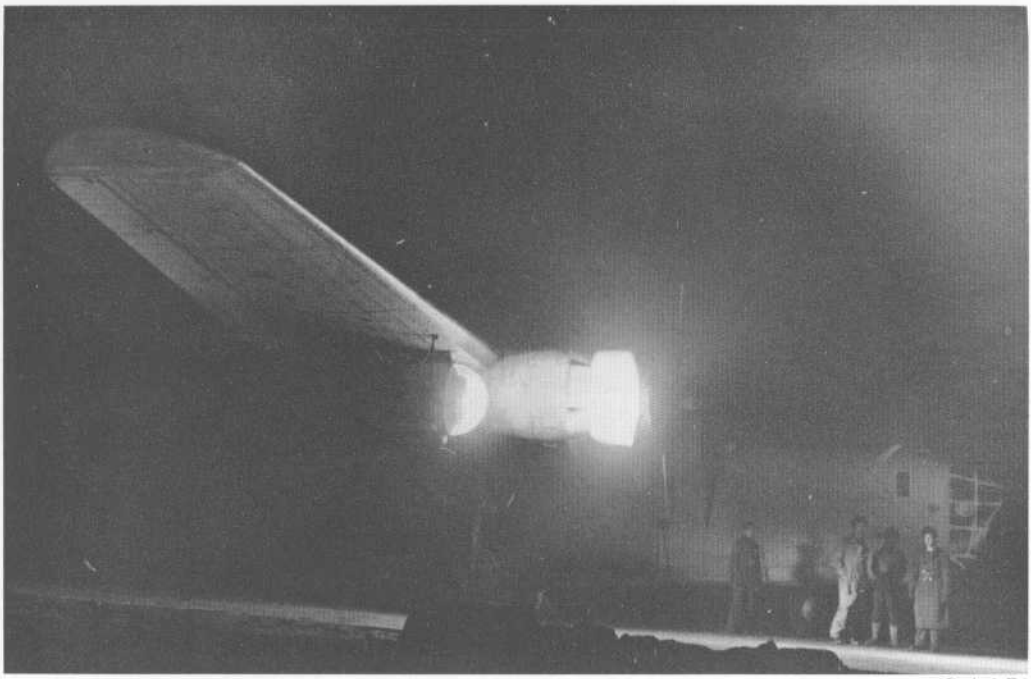
(*R.A.A.F.*)

Beaufighters of No. 455 Squadron took part in this two-wing strike on an enemy convoy off Mandal on the Norwegian coast, 15th July 1944.



(*Air Ministry*)

An *Elbing* class destroyer (foreground) and a *Seetier* class destroyer under attack by Beaufighters off Le Verdun, 28th August 1944.



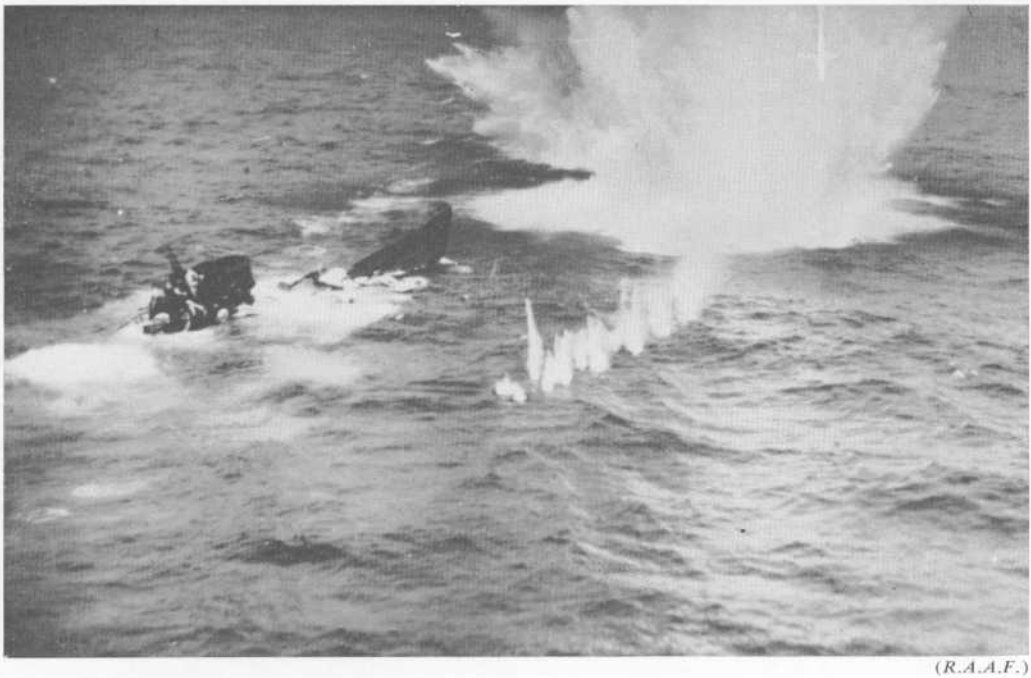
(*R.A.A.F.*)

A Liberator of Coastal Command fitted with the Leigh light, a two-million candlepower searchlight, used in conjunction with A.S.V. equipment, which could be switched on at a range of about one mile to illuminate a target. The device was developed by Sqn Ldr H. de V. Leigh, R.A.F.



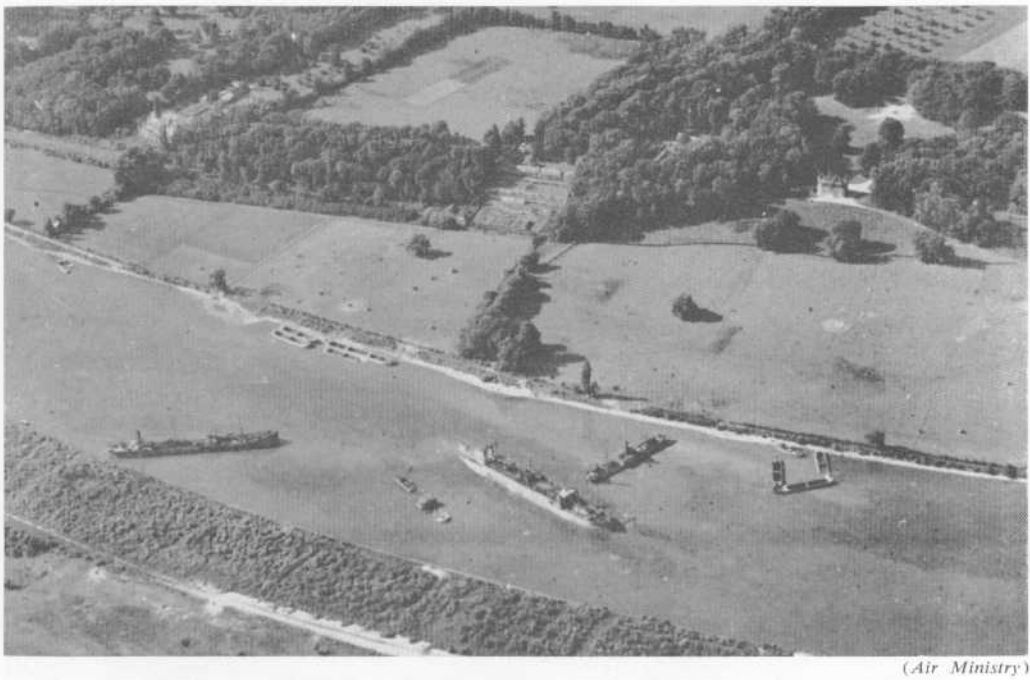
(*R.A.A.F.*)

Fitting bundles of leaflets into the bomb bay of a Wellington. Leaflet dropping continued to be one of the many tasks of the R.A.F.



(*R.A.A.F.*)

The 500-ton U-boat *U243* settling by the stern during the attack by F-Lt W. B. Tilley of No. 10 Squadron south-west of Brest on 8th July 1944. Another Sunderland of the squadron piloted by F-Lt R. E. Cargeeg and a Liberator later joined in the attack. A dinghy and food-pack were dropped by Tilley for the survivors of the sunken submarine.



(*Air Ministry*)

Ships scuttled in the Seine by the Germans eight miles down river from Rouen to deny the Allies the use of Rouen's port facilities. On the left is a 5,000-ton tanker and in the centre the *Ole Wegger*, a 10,000-ton whale-oil factory ship.

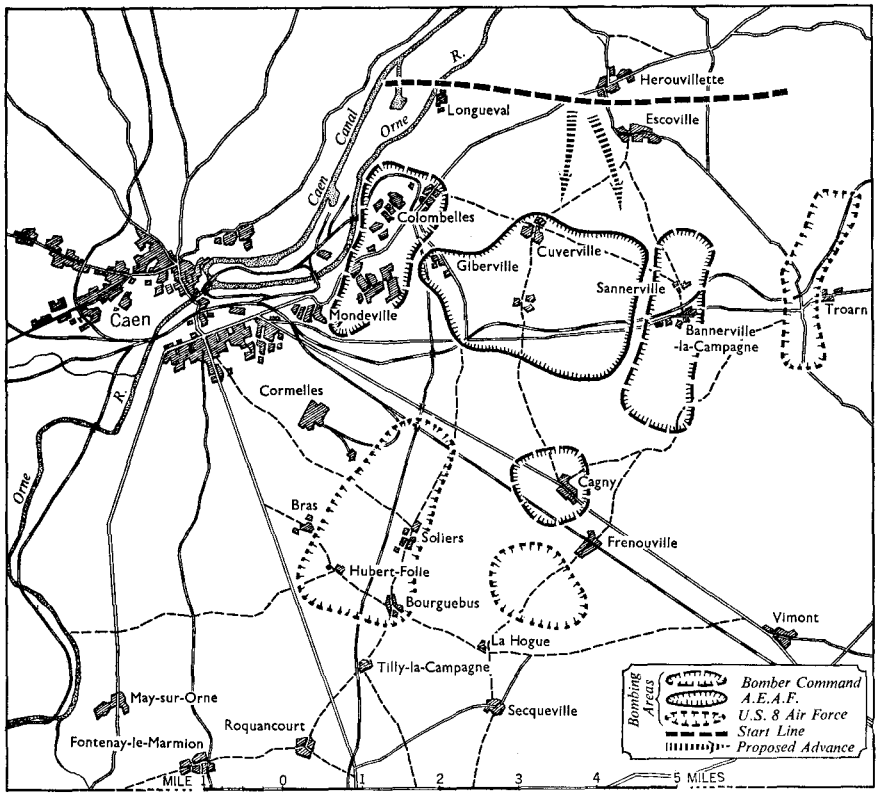
Lancasters and 20 Mosquitos) laid precise patterns of indicators at both aiming points. As the attack developed smoke and dust quickly obscured some markers but the master bomber was able to call on successive relays of "backers-up", and only 10 crews from the entire force failed to attack. Some Australian crews bombed visually, the Lancasters of No. 460 releasing their loads from heights between 3,000 and 6,000 feet while the Halifaxes of No. 466 bombed from between 6,000 and 8,500 feet. Each crew had been briefed to take special care to avoid any possibility of bombing friendly positions and all returned confident that the low level of attack and the close control exercised by the Master of Ceremonies had achieved a "very concentrated" bomb pattern in the true target area. Group Captain Edwards, commander of R.A.F. Station Binbrook, piloted one of the Lancasters of No. 460 during this raid and his comment at debriefing—"A successful attack and no snags"—epitomised the general views of Australian crews. There had been, however, a spirited reaction by enemy light guns in the southern part of Caen, and Pilot Officer Lindenburg[4] of No. 460 found his Lancaster attacked by several batteries at once. Three engines were disabled but Lindenburg was able to crash-land in a wheatfield behind the Allied lines. A Lancaster of No. 626 piloted by Pilot Officer Oram[5] was riddled from stem to stern and set ablaze while flying at 6,000 feet but, after ordering those unable to swim to bale out over land, Oram headed the blazing aircraft out over the Channel, and he and the remainder of his crew escaped by parachute just before the aircraft exploded, and were promptly picked up by naval vessels.

Lindenburg's crew spent 24 hours in the bridgehead and heard something at first hand of army impressions of the military value of the 2,500 tons of bombs so swiftly and without warning rained on the battlefront. The British and Canadian troops went forward some hours later, themselves in exultant mood, to find in many cases only weak opposition. The shock of this concentrated raid had a stupefying effect on some German troops directly in its path. Units and their equipment had become immobilized; some had lost communication with each other, and supply and repair arrangements were temporarily disrupted. But although by the evening of 8th July British troops had reached the northern suburbs of Caen it was then apparent that the bombing had been a double-edged weapon. It had opened the way to Caen but had caused so much cratering and debris in the narrow streets that a swift advance by armoured forces to seize the bridges across the Orne was not possible. Slowed down by obstacles of his own ordering, while the enemy had time to redeploy fresh troops, Montgomery had to be content with occupying Caen north and west of the Orne while the Germans, having blown all bridges, entrenched themselves in the industrial suburb of Vaucelles, still firmly athwart the through routes to Paris.

[4] F-O G. E. M. Lindenburg, DFC, 414708. 460 Sqn, 232 and 243 Sqns RAF. Sawmill hand; of Dalveen, Qld; b. Guyra, NSW, 8 Jan 1918.

[5] F-Lt J. C. Oram, DFC, 422250; 626 Sqn RAF. Airline purser; of Sydney; b. Wellington, NZ, 16 Jan 1917.

Despite its drawback of excessive damage Caen had amply demonstrated the stunning effect of participation of large bomber forces in stalemate ground situations, and Eisenhower approved the use of both Bomber Command and the American Eighth Air Force in the complementary major operations "Goodwood" and "Cobra" which were designed to create



Operation GOODWOOD

major break-outs on both the British and American sectors of the lodgement area. Operation Goodwood timed for 18th July was to consist of a spearhead of three armoured divisions which would punch through the enemy line and drive towards Bourguebus ridge, while the II Canadian and I British Corps followed quickly behind on either flank to consolidate. At the very least this major assault was expected to attract and contain the bulk of disposable German armoured and other units. Operation Cobra, which depended very much on the prior capture of the St Lo road junction (achieved by dour slogging actions by 18th July) and the inability of the Germans (preoccupied by Goodwood) to reinforce their western sector, was timed for 20th July and was a full-scale break-out to secure Brittany.

So highly was the air factor rated in plans for Goodwood that no fewer than 2,019 heavy, medium and light bombers were assigned to the task. Bomber Command with heavy bombs was to attack five specific areas south of the Orne River. In each area the cratering effect of high explosive bombs was acceptable as they lay away from the direct path of the proposed advance and cratering would in fact obviate the possibility of enemy flanking attacks over this ground. Heavy bombers of the Eighth Air Force were to drop high-explosive bombs on one and fragmentation bombs on two other areas to the rear and on the enemy flanks. Medium and light bombers of A.E.A.F. had three pinpoint targets and two areas which were to be liberally showered with fragmentation bombs. All crews engaged in this complicated operation were impressed with the need for exact timing and recognition of their allotted target; they were not to hesitate in bringing back their bombs if either condition could not be met. In some places the bomb-line was little more than a mile from Allied troops.

This most ambitious and most concentrated direct air support began at 5.45 a.m. on 18th July when 235 heavy bombers attacked Colombelles. Thirteen Lancasters of No. 463 and 14 of No. 467 were engaged and all crews attacked. The Australians were outspoken in their praise of the marking, the efficient control, the accuracy of the bombing and the lack of serious opposition. Wing Commander Forbes[6] of No. 463 who saw his stick of bombs fall across factory buildings summed up the operation thus: "Everything went according to plan and should be an absolutely successful attack." Squadron Leader Deignan of No. 467 said "From my point of view it was the best bombing trip I have ever done": his squadron's official diary described the raid as "a wonderful morale builder for both army and air force personnel".

Twenty minutes later a similar force of 232 Lancasters and Halifaxes attacked enemy positions surrounding the Mondeville steelworks. This was in the same general area as Colombelles which was still shrouded in smoke as the second force roared over. The two R.A.A.F. squadrons at Waddington provided five crews each for this phase, and from an altitude of 6,000 feet they all claimed that their sticks of 1,000-lb and 500-lb bombs fell exactly as required by the master bomber, who switched the attack from time to time on to different markers so that the whole area was equally covered.

Colombelles and Mondeville lay on the west flank of the proposed armoured break-through. On the east flank Sannerville, a road and rail junction between Caen and Troarn, was attacked at 5.45 a.m. by 125 Lancasters of No. 1 Group and 105 Halifaxes of No. 4 Group. Wing Commander Douglas led 18 crews of No. 460 and Wing Commander Connolly six of No. 466 and described the low-level attack as an excellent exhibition of concentrated bombing on and around the markers.

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[6] W Cdr W. A. Forbes, DSO, DFC, 414219. 467 and 463 Sqns; comd 463 Sqn 1944-45. Advertising manager; of Bundaberg, Qld; b. Charters Towers, Qld, 28 Dec 1919. Killed in action 21 Feb 1945.

Another mixed force of 242 bombers struck the other nominated objective on this flank (Mannerville) 20 minutes later to coincide with the Mondeville raid. Although all six Oboe Mosquitos detailed for this operation suffered technical difficulties and failed to mark the target, the pathfinder Lancasters switched roles from backers-up to primary markers and the raid continued successfully.

The final contribution of Bomber Command to operation Goodwood was a smaller attack by 106 bombers against Cagny, a strongpoint on the road between Caen and Vimont which was held by the *21st Panzer Division* and had to be subdued if the British armour, as planned, was to sweep past on either side. This attack took place at 6.20 a.m. and again was rated as successful. Thus within 35 minutes Bomber Command had deluged its five aiming points with 5,000 tons of bombs. Only 34 of the 1,057 aircraft dispatched failed to attack and only nine were lost, despite the low-level approach which permitted the enemy to bring multi-purpose batteries to bear on the attackers. The only R.A.A.F. losses were Flight Lieutenant Sinclair[7] of No. 76 and Flying Officer Starkoff[8] of No. 578 both shot down over Mannerville.

Before the 11th British Armoured Division began to roll forward at 7.45 a.m. some 570 American heavy bombers and 350 American medium bombers carried out fragmentation and spot attacks in the battle area, although they reported that identification of precise targets was increasingly difficult because of the smoke and dust raised by earlier raids. The fighter-bombers and fighters of A.E.A.F. then took over duty to satisfy the battle needs of the army. After all the sound and fury of this unprecedented aerial barrage the Allied spearheads at first made good progress. Although enemy casualties from the bombing had not been large, troops of both the *21st Panzer* and *16th Air Force Divisions,* which had been in the forefront, were half-stunned and unable to offer determined resistance. By the afternoon the greater part of Vaucelles had been won and British armour had thrust to Frenouville, Tilly-la-Campagne and Bourguebus. German resistance then began to increase and the advance faltered on the 19th before well-sited anti-tank guns and determined counter-attacks by tanks.

On the 20th heavy rain transformed the battle zone into a sea of mud and Goodwood, despite all the high hopes of its planners, failed to secure a break-out into the Falaise plain. From an air viewpoint disappointment verged on anger because the airfields vital to an orderly deployment of A.E.A.F. on the Continent remained firmly in enemy hands. Except at Cagny where a heavier attack might have destroyed some 88-mm guns which the Germans used to great advantage in the battle, Bomber Command had done all that had been asked of it. The army had been given a blank cheque to use air power and it was felt

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[7] F-Lt P. E. Sinclair, DFC, 420288; 76 Sqn RAF. Jackeroo; of Moree, NSW; b. North Sydney, 21 Dec 1921. Killed in action 18 Jul 1944.

[8] F-O V. Starkoff, DFC, 414432; 578 Sqn RAF. Cabinet maker; of Brisbane; b. Irkutz, Russia, 31 Jan 1911. Killed in action 18 Jul 1944.

that any failure lay in Intelligence weaknesses by which targets were chosen or overlooked rather than in the execution of the tasks.

Meanwhile bad weather held up operation Cobra, for which air support was to come entirely from American units, until 24th July, and then a false start was made when nearly 2,000 bombers took off from bases in England. Heavy cloud and thick mist lay over the target area and the majority of crews failed to bomb; the ground assault was postponed. Next day conditions improved and 1,495 heavy bombers of the Eighth Air Force and 388 aircraft of A.E.A.F. dropped 4,790 tons of bombs in an area five miles in length and one mile wide to the west of St Lo. At the same time medium bombers attacked troops and artillery south-east of Caen and fighter-bombers ranged over the whole battle area. The number of A.E.A.F. sorties alone reached 4,979 in this all-out effort to swamp enemy ground defences: there was no opposition from the *Luftwaffe*.

The air contribution to Cobra was not without shortcomings including failure to attack the correct objectives. Squadrons dropped their bombs on a signal from the lead aircraft and on several occasions friendly troops were attacked in error; the general precision of attack fell far short of the Bomber Command assaults that were closely controlled by Oboe navigation and a master bomber. Nevertheless positive results were achieved in the destruction of enemy communications; and, although enemy troops were well dug in and suffered only light casualties, they were disorganised and found equipment badly damaged at least temporarily. They were in no position to maintain their hitherto dogged control of road junctions as General Bradley's forces surged forward. Coutances fell on 28th July and Avranches and Granville two days later. On 31st July Pontaubault was captured and the Americans had a foothold in Brittany.[9]

The initial results of Cobra compensated in some measure for the failure of Goodwood but still called for renewed activity in the British sector to prevent the enemy from transferring divisions to meet the new emergency. Accordingly by 30th July, the Second British Army was ready to make a strong attack in the Caumont area. Heavy air bombardment was again made a prerequisite and 693 Lancasters and Halifaxes of Bomber Command and 500 light and medium bombers of A.E.A.F. were finally dispatched against six aiming points. Weather again played the Allies false, and because of low cloud no appreciable weight of bombs fell on three of the chosen objectives. No. 463 sent 16 Lancasters and No. 467 14 to attack Cahagnes but the crews orbited for some time without finding any markers to bomb, and all except 3 eventually returned to base with their bombs. Similarly all 9 Halifaxes dispatched by No. 466 had an entirely abortive trip. At the aiming points where cloud was less dense 379 bombers did attack and subsequent photographic and ground surveys showed numerous craters in the vicinity of these objectives. Once again

[9] The air assault which so benumbed the enemy gave only the opportunity for this breakthrough. Bradley's use of rhinoceros and bulldozer tanks to cut cross-country paths played a significant part in the exploitation of this fleeting chance.

a local paralysis was created and enemy units in the bombed area remained disorganised throughout 30th July.

Although part of this initial advantage was lost because the ground attack did not begin immediately after bombing ceased, bitter fighting over the next few days drove the enemy back to Villers-Bocage and Beny-Bocage thus safeguarding the flank of the American salient. By this time the adventurous General Patton, whose Third American Army had just been formed, had hurried several divisions beyond the tiny bridgehead at Pontaubault and had reached both Rennes to the south and Vannes to the west.

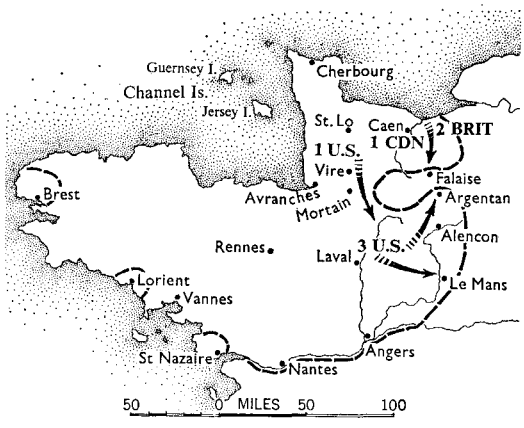
Massive intervention by heavy bombers was next called for during the night of 7th-8th August when the First Canadian Army was to attempt a night assault towards Falaise. Five aiming points were chosen on the flanks of the projected advance and it was arranged that these would be marked by coloured star shells fired by ground artillery as well as by Oboe method from the air. For this daring concept of a night bombing attack during the initial stage of a night ground battle Bomber Command agreed to provide more than 1,000 heavy bombers, but in the event, with overcast cloud obscuring ground detail, and the Oboe marking sometimes appearing at variance with the artillery markers, master bombers were cautious and let only 660 crews bomb, sending the others home with their loads intact. No. 460 alone sent a near-record force of 32 Lancasters to Fontenay-le-Marmion as part of a No. 1 Group effort of 212 bombers. Oboe marking began at 11.13 p.m. followed two minutes later by the ground star shells. The master bomber assessed these markers and had directed the first bombers to begin unloading by 11.19 p.m. The target indicators were quickly obscured by smoke and, despite use of the backers-up, were all invisible by 11.23 p.m., when the attack was halted. In these hectic four minutes only 15 of the R.A.A.F. crews could bomb; the other 17 were in the area but could not jockey for position. Nevertheless 830 tons of bombs fell in an area half a mile to the west, south and east of the pinpoint, heavily cratering all roads.

Three of the other four attacks that night in support of operation "Totalize" were similarly curtailed. Only the composite force of Nos. 3, 6 and 8 Groups completed its task, being fortunate in having a much greater force of backers-up. This raid lasted from 11.37 until 11.50 and plastered a half-mile circle with 1,019 tons of bombs. No. 4 Group could sustain only a three-minute attack at May-sur-Orne where only half the force (including 12 out of 16 dispatched by No. 466) bombed, dropping 427 tons. Only 5 (out of 16) of No. 463 and 3 (out of 17) of No. 467 attacked before the No. 5 Group attack on Secqueville-la-Campagne was cancelled after 620 tons of bombs had fallen. At La Hogue No. 6 (R.C.A.F.) Group dropped 473 tons before abandoning their attack.

Canadian infantry in armoured tracked-carriers were able to surge forward between the cratered wastes left by the bombers; and during the next day, when 678 American Air Force heavy bombers gave extra support, May-sur-Orne, Fontenay-le-Marmion, Roquancourt and

Tilly-la-Campagne were captured. As the Canadian armour moved south, however, the indefatigable and ubiquitous German anti-tank guns slowed the momentum of the attack, and, although advances of up to eight miles were made by 11th August, the line had become static once more only half way to Falaise, which had been the prime objective.

The Germans were by this time in a very precarious military situation. Overstretched along the whole perimeter of defence they had not only been driven by Hitler's personal edict to conduct an almost suicidal major counter-attack at Mortain in a vain attempt to regain Avranches and thus isolate Patton, whose mobile columns, scorning supply troubles, were rampaging throughout Brittany, but, when this had failed, they had been issued with a "no retreat" order which allowed no respite for regrouping. The entire south-west German flank was being rolled up by Patton, who moved quickly to Laval, then to Alencon and then northwards against Argentan almost in the enemy rear. There was now a possibility of a major envelopment of the *Seventh German Army*. Montgomery ordered the Canadians to begin on 14th August operation "Tractable"—a daylight assault intended to batter a corridor to Falaise and then towards Argentan to link up with the Third American Army.



Bomber Command's part in Tractable was to pulverize seven nominated strongpoints and troop concentrations all within 2,000 yards of the Canadian positions. Visibility for once was excellent and was impaired only by smoke-screens put forth by both Canadians and Germans. Australian crews had the rare experience of being able to attack from between 2,000 feet and 3,000 feet against negligible opposition. Flying Officer Davey[1] of No. 460 bombed a line of tanks and support vehicles near Fontaine-le-Pin and Flying Officer Hanrahan[2] attacked a convoy of lorries; both reported considerable confusion among the enemy at the sight of such monstrous tactical bombers bearing down on them. Others of the 20 Binbrook crews had to be content with unloading on target indicators or the German smoke-screen. The other three R.A.A.F. squadrons were sent against two separate aiming points at Quesnay and all crews returned feeling that they had enjoyed a field day. They were further heartened as reports from the battlefront showed that British tanks were rolling

[1] F-Lt S. J. Davey, DFC, 415725; 460 Sqn. Oil depot superintendent; of Mount Hawthorn, WA; b. Queen's Park, WA, 18 May 1913.

[2] F-O A. A. Hanrahan, 410976. 460 Sqn, 238 Sqn RAF. Grocer; of South Yarra, Vic; b. Yarrawonga, Vic, 18 Jun 1916.

implacably forward. The German anti-tank gunners, shaken and deafened by bombing and blinded by smoke-screens, could not repeat previous herculean efforts, and by 16th August the Canadians were in Falaise.

With the front now mobile there was no further call for heavy-bomber support. The part played by Bomber Command in resolving the long stalemate at Caen is perhaps best evaluated by the disinclination of Montgomery to make any frontal attack against deep defences without first "whistling up the air". It was fortunate that by this time Allied air resources were so vast that these tasks could be willingly accepted, for the precise military value of the series is more difficult to define. In their five operations Bomber Command dispatched over 4,000 aircraft and expended 16,000[3] tons of bombs. Enemy morale was seriously affected while the sight of bombers overhead increased the confidence of the Allied troops. But the paralysis and disorganisation in the enemy front line after each attack were only temporary and, when the fleeting advantage created by the bombers was not quickly used, another little "bomb desert" had been created at great cost with no real gain, for craters could hamper friend and foe alike.

The raids had proved, however, that Bomber Command was a more flexible instrument than many of its champions and its crews had hitherto believed. Australians, like others, quickly learned the new techniques required in this specialised sphere of ground support. Only the utmost faith in the professional efficiency of R.A.F. navigation, bomb aiming and control systems had permitted the Caumont night attack. Adequately shielded by A.E.A.F. and No. 100 Bomber Support Group from air attack, and in defiance of ground guns, the lumbering heavy bombers had been able to operate at low level with negligible losses, only 24 bombers being shot down from all causes during the entire series. All these factors had a beneficial reaction and aircrews also gained a stimulus from the sense of personal participation in the intricate chess game of an actual battle. It was for most of them, however, only an interlude, albeit an interesting one, in the prime task of strategic bombing.

Throughout the period when Allied troops held only the Cherbourg peninsula and the narrow coastal strip near Caen, Bomber Command remained committed to its part of the plan to attack enemy communications in France. Eighteen rail centres were the prime targets, the aim being to keep them sufficiently damaged to inhibit a swift traffic flow, thus not only reducing the rate of German build-up of men and supplies but also forcing more and more traffic on to the roads where it could be attacked both day and night by light and fighter-bombers of A.E.A.F. Thus, in six weeks from the beginning of July, no fewer than 25 raids were mounted. In 13 cases there was no need to attack again before the campaign ended but 3 rail centres required 2 raids and 2 centres 3 raids before the desired result was achieved. The forces employed continued

[3] Equal to the total tonnage dropped on enemy occupied territory during the first 20 months of the war.

to be of the order of 120 to 150 bombers—an economical size easily mounted by a single group with pathfinder support. In this period 3,500 bombers were dispatched against rail centres. The attacks were mostly at night and resulted in an aggregate of 13,271 tons of bombs falling around the targets. As they involved deeper penetration, and because the enemy protected these important rail links with strong gun batteries, these raids were more costly than the shallow air-support raids near Caen: 82 bombers (2.3 per cent) failed to return.

One or more R.A.A.F. squadrons took part in 15 of the 25 rail centre raids in July and August, beginning on 4th-5th July when 14 Lancasters of No. 460 struck successfully the Les Aublaise railway yards at Orleans.[4] The next night another 14 crews of the same squadron[5] joined in an attack on Dijon, where repair shops, round-houses and sidings were severely damaged. No. 460 also recorded a successful sortie against a railway junction south-east of the passenger station at Tours on 12th-13th July[6] but two nights later 15 Waddington crews were sent to Revigny only to be ordered by the master bomber not to attack because he could not assess the accuracy of the target marking.

The Tours attack on 12th-13th July had been one of three rail attacks that night. One force sent to Revigny was heavily beset by night fighters and lost 10 of the 107 bombers which arrived over a cloud-covered target. No. 5 Group fared better at Culmont Chalindrey where both the railway junction and a viaduct to the east were nominated as aiming points. Twelve aircraft from No. 463 attacked the viaduct and a similar number from No. 467 struck the centre itself where sheds and repair shops were gutted, 20 locomotives damaged and all lines temporarily blocked by craters. The important through line running to Dijon, Chaumont and Belfort was severed in many places. This excellent result surprised some Australian crews because the master bomber's radio was not working efficiently and crews could not hear his instructions clearly. This indecision affected the tempo of the attack and re-marking had to be ordered, with the result that some crews were orbiting for up to half-an-hour before they could attack. On the 14th-15th, while No. 460 was on its fruitless journey to Revigny, eight Lancasters from each of the sister squadrons at Waddington were sent in a force of 128 aircraft to attack the Villeneuve St George railway yards near Paris. French underground, photographic and other Intelligence sources had reported that a huge quantity of rolling-stock loaded with military supplies was awaiting transit through these yards. Particular care in marking the aiming point was taken by the master bomber who descended to low level to verify by visual pinpoints that the Oboe markers were well placed. This delayed the opening of the attack and some crews were forced to mill around for up to 20 minutes before being called in for a bombing run. Enemy fighters were present but failed to press home

[4] Total force 156 aircraft.

[5] Total force 154.

[6] Total force 117 including 19 Lancasters of No. 460.

serious attacks. Most crews bombed from between 5,000 and 8,000 feet with good results.

Australians in No. 5 Group were out again the following night when railway yards and the junction of the Paris-Le Creusot main lines were severely damaged at Nevers. These excellent results were not immediately seen by the eight crews of No. 463 and the nine of No. 467 which took part, because, as an experiment in avoiding the extinguishing of ground markers, delayed-action bombs were employed.[7] These bombs were fitted with tail tracers to allow bomb aimers to follow the trajectory and this did give some confidence that the bomb pattern had in fact been concentrated.

Revigny, already the objective of two abortive raids by other groups on 12th-13th and 14th-15th July, was nominated as a target for No. 5 Group on 18th-19th July. This was an ill-fated attack as no fewer than 24 of the force of 110 bombers failed to return to base.[8] It was a case of the elaborate nightly R.A.F. tactical deception plan misfiring for once. The enemy ignored the raid against Scholven-Buer, being deceived into thinking it was a diversionary sweep. The *Luftwaffe's* strength in Belgium was sent westward into France and ran headlong into the force attacking Revigny. Fighter attacks began over the target and the fighters then hung determinedly around the skirts of the retiring bombers until they crossed the coast. Few crews saw obvious signs of success because long-delay fuses were again used, but later evidence showed that after the attack only one through line remained open. One R.A.A.F. pilot criticised the chosen route, which crossed an active searchlight belt in the Pas de Calais. After seeing four Lancasters shot down over the target within two minutes he swung out of the stream and skirted this searchlight belt and reported that other aircraft which had kept to track were shot down. Australian losses were particularly severe. Aircraft piloted by Flying Officers Gifford[9] and Worthington[1] of No. 463, Flying Officers Davis[2] and Beharrie[3] of No. 467, Flying Officer Appleyard[4] of No. 49, Flying Officer Molinas of No. 619 and Flying Officers Dennett,[5] Maxwell[6] and

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[7] This had become an increasing problem. With several raids each night it was difficult to provide sufficient PFF backers-up and, if bombing was accurate, as was particularly evidenced on medium and low-level raids, blast from bombs blew out or obscured with dust and smoke the primary markers.

[8] On this night No. 463 lost 2 out of 8 and No. 467 2 out of 8 Lancasters sent out. The three raids on Revigny cost 41 aircraft, exactly half the entire losses on all 18 railway targets during the period under review.

[9] F-O B. H. Gifford, 415520; 463 Sqn. Accountant; of Narrogin, WA; b. Beverley, WA, 1 Jun 1916. Killed in action 19 Jul 1944.

[1] F-O J. R. Worthington, 406417; 463 Sqn. Plant operator; of Northampton, WA; b. Northampton, 23 Aug 1912. Killed in action 19 Jul 1944.

[2] F-O T. E. W. Davis, 420173; 467 Sqn. Mechanic; of Alexandria, NSW; b. Sydney, 10 Dec 1922. Killed in action 19 Jul 1944.

[3] F-O D. Beharrie, 418334; 467 Sqn. Able seaman RAN; of East St Kilda, Vic; b. South Yarra, Vic, 15 Dec 1916. Killed in action 19 Jul 1944.

[4] F-O W. D. Appleyard, 415716; 49 Sqn RAF. Clerk; of Claremont, WA; b. Claremont, 24 Feb 1922. Killed in action 19 Jul 1944.

[5] F-O P. B. Dennett, 418927; 630 Sqn RAF. Jackeroo; of Toorak, Vic; b. Melbourne, 29 Sep 1922. Killed in action 19 Jul 1944.

[6] F-O G. E. Maxwell, 425331; 630 Sqn RAF. Stockman; of Goowarra, Qld; b. Taroom, Qld, 21 Jan 1917. Killed in action 19 Jul 1944.

Brittain[7] of No. 630 were all shot down. Brittain and Flight Sergeant Hawken,[8] a wireless operator in Maxwell's crew, were sheltered by French civilians until rescued by Allied ground forces, but others were less fortunate. Of the crews which returned, that captained by Flying Officer Jennings[9] of No. 83 displayed exceptional skill and resilience in outwitting enemy fighters, which made 12 separate attacks during the homeward flight.

In contrast to Revigny, Aulnoye railway yards, which were attacked the same night by No. 3 Group, were equally well hit for the loss of only two bombers. Shocked as they were by their losses, crews quickly realised that Revigny had been an ambush created by errors rather than a definite sign of German Air Force superiority.

Two nights later on 20th-21st July both Nos. 1 and 5 Groups combined to attack the important railway centre of Courtrai with 321 bombers, the largest force used against this class of target during the campaign. In the first wave 18 of No. 463 and 14 of No. 467 joined in a very successful attack against marshalling yards. Raid accounts refer to excellent marking with sound control and a good concentration of bombs. There was some criticism of the spoof fighter flares designed to confuse the *Luftwaffe*. In the opinion of some crews these were too close to the actual target and in fact illuminated the fringes of the bomber stream. No. 467 lost two freshman crews but otherwise casualties were very light. An hour later 22 Lancasters of No. 460 arrived in the second wave to attack the triangle main lines junction under the direction of the master bomber, Squadron Leader Swan[1] of No. 635. Crews were again critical of the spoof flares which seemed to aid rather than distract enemy fighters. Five bombers were lost and there were many combats reported by crews which did return. Nevertheless the 1,650 tons of bombs dropped at the two Courtrai aiming points created a scene of devastation. Reception and dispatch sidings were destroyed, the passenger station was almost gutted, and a bridge carrying five sets of tracks was demolished. An effective bottleneck had been created at a significant point in relation to the land battle.

Almost a week elapsed before Bomber Command struck on 26th-27th July against another rail centre. This time the target was Givors near Lyon, and the attack was intended to impede any transfer of enemy divisions from southern France to Normandy. Although electrical storms, rain and bad visibility hampered navigation en route and the marshalling of aircraft over the target, some 600 tons of bombs fell without undue scatter and caused heavy damage to the Givors-Lyon main tracks on the

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[7] F-O B. W. Brittain, 414756; 630 Sqn RAF. Farmer; of North Arm, Qld; b. Cooroy, Qld, 3 Sep 1922.

[8] F-O S. A. Hawken, 418663; 630 Sqn RAF. Plumber; of Tocumwal, NSW; b. Kerang, Vic, 31 Dec 1916.

[9] F-Lt D. A. Jennings, DFC, 408349. 50 and 83 Sqns RAF. Builder; of Sandy Bay, Tas; b. Hobart, 2 May 1921.

[1] W Cdr P. H. Swan, DSO, DFC, 400498. 105, 139 and 635 Sqns RAF; comd 460 Sqn 1945. Clerk; of Brighton Beach, Vic; b. London, England, 2 Jan 1920.

east bank of the Rhone. R.A.A.F.[2] crews of No. 5 Group considered that the raid would have been abortive but for close and determined control exercised by the master bomber. This moderately successful raid was then followed on 31st July by a daylight attack in which No. 5 Group was favoured with good weather when 120 bombers were sent to Joigny-la-Roche. An efficient fighter escort inhibited enemy attacks and the bombers had no navigation problems: they arrived promptly over the target and were able to bomb immediately against well-grouped markers. Pilot Officer Campbell[3] of No. 463 reported that his aircraft was the second to attack and he was able to follow the trajectory of his bombs and saw them burst over the railway yards. Most of the nine crews of No. 463 and 12 of No. 467, who all bombed from 15,000 feet, were able to identify craters and columns of smoke near the round-houses, sidings and platform areas because of the excellent visibility.

The weather had again improved when, on 11th-12th August, a large force of 192 Lancasters of No. 5 Group returned to Givors. All 34 R.A.A.F. Lancasters (16 of No. 463 and 18 of No. 467) bombed, releasing 142 of the total of 684 tons divided between northern and southern aiming points in the marshalling yard and junction areas. This operation was conducted without loss, flak was negligible and the *Luftwaffe* did not attempt interceptions. The target was described as one mass of smoke penetrated occasionally by explosions thought to be of truck-borne ammunition. This jubilation was largely justified when Intelligence sources reported that the marshalling yard had been completely blocked and all main lines running to Lausanne, Paris, Lyon and St Etienne were severed.

Meanwhile No. 4 Group, occupied early in July with attacks against flying-bomb targets, made its first major railway attack on the evening of 18th July. Fifteen Halifaxes of No. 466 had been held back from participation in the early morning support for Goodwood and were now included in a force of 110 bombers ordered to attack Vaires, an important centre already twice raided earlier in July. The attack began in ragged fashion as some crews arrived ahead of schedule owing to variable winds, and some impetuous crews bombed before markers were laid. The bombing discipline of more experienced captains finally achieved a satisfactory pattern of attack, with an additional 160 craters in the main sidings and numerous cuts in the Paris-Meaux through line. Enemy gunfire near Vaires and throughout the route was troublesome, one in every three R.A.A.F. aircraft being holed.

One unforeseen result was that crews were given a convincing demonstration of the sound construction and airworthiness of the Halifax when Flight Lieutenant Finley's[4] aircraft was severely damaged by a shell

[2] No. 463 sent 18 and No. 467 14 Lancasters in this force, all Australians except one attacking. This was the fourth successive night on which the squadrons operated that week, the other targets being Kiel, Stuttgart and St Cyr near Versailles.

[3] F-O G. R. Campbell, 410946; 463 Sqn. Schoolteacher; of Hawthorn, Vic; b. Buninyong, Vic, 27 Mar 1919. Killed in aircraft accident 4 Dec 1944.

[4] F-Lt P. H. Finley, DFC, 412294. 466 and 462 Sqns, 1 Air Support Unit. Clerk; of Strathfield, NSW; b. Temora, NSW, 6 Dec 1919.

exploding in the fuselage. The rudders were useless, the elevators would not respond and there was every prospect that the Halifax would break in two. Finley ordered his crew to bale out and his mid-upper gunner, while floating earthwards, considered that the aircraft's back was broken as the tail unit was swinging from side to side. Nevertheless Finley and his bomb aimer, Pilot Officer Evans,[5] attempted to fly the aircraft back to base, and by great physical exertion managed to coax it back across the sea to the Dungeness area, where it became unmanageable and they escaped by parachute shortly before it disintegrated in the air. It appeared incredible but very praiseworthy that such a large part of the return flight had been made in such a condition, and general confidence in the rugged qualities of the Halifax was increased.

No. 466 Squadron missed the No. 4 Group attack against railway sidings at Hazebrouck on 6th August (it was attacking supply dumps in the Foret de Nieppe at Merville that day), but it sent 14 Halifaxes to join in a highly successful night attack against Dijon on 10th-11th August, and in daylight on 11th August also bombed a railway bridge at Etaples. No. 460 also re-entered the railway interdiction struggle after a pause of three weeks when, in daylight on 11th August, 14 R.A.A.F. Lancasters in a force of 135 struck hard at Douai.

These massive hammer blows by Bomber Command against enemy railways were intended to depress the general traffic potential on all lines leading to the battle area. Complementary were the incessant smaller attacks by the Eighth Air Force and A.E.A.F. against bridges, individual stretches of main line and moving traffic. Bridges in particular offered the chance of creating local choke points and between July and September 1944, the Eighth Air Force sent out 1,265 bombers to drop 3,400 tons of bombs in 42 attacks on bridges. During the same period fighters, fighter-bombers and light bombers of A.E.A.F. showered 6,700 tons of bombs on 242 bridge targets in a total of 5,000 sorties. The number of aircraft employed on each occasion and the frequency with which attacks could be mounted had to be regulated by other battlefield calls and by the weather, which often caused the cancellation of planned raids. Practically all this activity was conducted by American elements of A.E.A.F. The Australian contribution was very small, being confined to the efforts of individual R.A.A.F. aircrew scattered among the squadrons of Second Tactical Air Force, which made only 43 of the 242 A.E.A.F. raids.

Opportunist fighter-bomber attacks by Australians began soon before noon on 2nd July when Flying Officer Baragwanath, Warrant Officer Bell and Flying Officer Glanville[6] were in a force of 11 Mustangs of No. 19 Squadron R.A.F. which attacked a bridge across the River Orne. This attack failed but two of these pilots, together with Flying Officer Cooper, scored near misses during an evening attack on 2nd July against another Orne bridge. Flight Sergeant Kelly of No. 65 scored near misses

[5] F-Lt R. J. Evans, DFC, 410202. 466 and 462 Sqns. Farmer; of Carrum, Vic; b. Melbourne, 13 Oct 1910.

[6] F-Lt P. T. Glanville, 412428. 63 and 19 Sqns RAF. Auctioneer; of Strathfield, NSW; b. Sydney, 18 May 1916.

against bridges on both 3rd and 5th July, while Flying Officer O'Connor,[7] Warrant Officer Coburn[8] and Flying Officer McBean[9] joined in various attacks with rocket projectiles made by Tempest aircraft of No. 182 Squadron R.A.F. on 9th, 18th (2 raids) and 31st July. Joint attacks by medium bombers and fighters were common, and in these R.A.A.F. fighter pilots, who also joined in escorts for Bomber Command daylight raids, were prominent, although they rarely comprised more than 8 per cent of the total force.

There were many occasions when the campaign against enemy communications merged inextricably with the general pattern of close-support operations. This was especially true of the light bombers of Second T.A.F., which continued their task of impeding all forms of enemy movement during the hours of darkness. No. 464 Squadron which had moved from Gravesend to tented quarters at Thorney Island on 17th June would have preferred a base on the Continent but nevertheless was able to mount over 350 sorties during July and 400 during August from its inadequate temporary base. Wing Commander G. Panitz, who earlier had achieved some fame as a "train buster" with No. 456 took command on 22nd June from the well loved Wing Commander Iredale, who for six months had trained his crews in a variety of airfield, railway and Noball target attacks. The value of this training and leadership had been shown in the ever-increasing offensive capacity of the squadron which rose in June to over 250 sorties, but the squadron was now called upon to strike on every possible occasion while the battle in Normandy hung in the balance.

For No. 464 July began inauspiciously. High winds and driving rain showers on the first two days prevented any operation except a single weather reconnaissance by Squadron Leader Hyem[1] on the evening of the 1st July, during which he broke cloud and set on fire a lorry encountered by chance near Vire and halted with cannon strikes another lorry near Granville.[2] However 13 Mosquitos were out on 3rd-4th July in a wide sweep north of the Loire, each aircraft bombing road or rail junctions and using its guns against any sign of enemy movement. Bridges, railway tunnels and marshalling yards behind the German lines were again bombed by 14 R.A.A.F. Mosquitos on 4th-5th, by 12 on 5th-6th, 16 on 6th-7th and 15 on 7th-8th July. Precise estimates of the results of individual attacks were extremely difficult to make, because although there were obvious fires among lorry convoys, pyrotechnic flashes as railway electrical switchgear was shattered, or clouds of steam when a locomotive was hit, many attacks on bridges or road junctions led to no

[7] F-Lt N. T. O'Connor, DFC, 413413; 182 Sqn RAF. Window dresser; of Strathfield, NSW; b. Goulburn, NSW, 8 Oct 1918.

[8] W-O T. W. Coburn, 401767. 417 Sqn RCAF, 182 Sqn RAF. Architectural draftsman; of Ballarat, Vic; b. Ballarat, 20 Jul 1920. Killed in action 8 Sept 1944.

[9] F-Lt W. J. McBean, 408918; 182 Sqn RAF. Grocer; of Casterton, Vic; b. Casterton, 20 Sep 1915.

[1] Sqn Ldr R. W. Hyem, 402863. 96 Sqn RAF, 456 and 464 Sqns. Jackeroo; of Gunnedah, NSW; b. Gunnedah, 28 Feb 1919.

[2] The squadron diarist wrote glumly (2nd July): "A foul day today—everything is damp and life under canvas is not altogether rosy—intermittent rain all day and prospects for tonight not good."

visible signs of success, and in the main crews had to be content that they were in fact keeping up a pressure which would finally help to make the enemy supply position untenable.

On 8th-9th July and again the next night No. 464 concentrated on targets between Caen and Falaise but then returned to its previous scavenging role along the line of the Loire. Sometimes as on 10th-11th aircraft were forced to bomb on Gee fixes of probable objectives, but even on nights of poor visibility opportunities normally occurred for some visual attacks. The general task was interrupted only on 14th-15th when Panitz, Hyem, Flight Lieutenant Parsons and Flying Officer Walton,[3] four very experienced pilots, took part in a wing attack against a special static target —the Gestapo barracks at Bonneiul-Matours in the Chatellerault area where buildings were left enveloped in flames. Five other crews attacked general transport targets that night but there was then a lull during three nights of bad weather before the squadron operated at full strength for two nights in support of the Goodwood offensive. Targets along the Seine then alternated with the familiar Loire targets for the remainder of the month, until the 29th-30th when 14 Mosquitos were sent to harass the German rear at Granville and Avranches, which was under heavy pressure from the Third American Army.

Intruder strike operations continued on each "flyable" night of August, and beginning on the 12th-13th some crews were called on to perform two trips each night to make the most of the ever-worsening enemy ground situation. Within six nights the squadron put up 140 sorties and found many opportunities, especially against road convoys. Then, on 22nd August, a daylight attack ordered against ammunition and supply trains massed in the railway yards at Chagny, near Dijon, gave the Australians an opportunity of concerted attack which they had long awaited. Panitz led 13 Mosquitos in an ultra low-level attack and all returning crews claimed positive success against locomotives or stationary wagons; Panitz himself was shot down. Two other crews had been lost earlier in August and one during July. The casualty rate was by no means high considering the level and nature of operations, but the loss of such a dynamic leader as Panitz was keenly felt. No. 464 was fortunate in having immediately available to assume command Wing Commander Langton,[4] a R.A.F. pilot who had spent some of his early years at school in Adelaide and had been attached to the squadron for flying duties for some time. Operations continued unabated in the form of nightly sweeps—only the area was changed; interest now lay in the area north and east of the Somme as the German armies were driven back.

While the Mosquitos maintained throughout July and August their pugnacious nightly campaign against enemy movement, the principal R.A.A.F. contribution to the larger complementary daylight effort of A.E.A.F. was provided by No. 453 Squadron of Spitfire fighter-bombers

[3] F-Lt J. R. C. Walton, 414530; 464 Sqn. Clerk; of Maryborough, Qld; b. Maryborough, 15 Jan 1922.

[4] W Cdr A. W. Langton, DFC, AFC, 32158 RAF. Comd 464 Sqn 1944-45. Regular air force offr; b. Chingford, England, 30 Mar 1910.

which had moved to the beach-head on 25th June under command of No. 125 Wing in 83 Group of Second T.A.F. Fighter protection patrols were still required from time to time as the *Luftwaffe* made sporadic attempts to join in the ground battle, but increasingly the normal employment of No. 453 was in armed reconnaissance missions of squadron strength, directed against enemy road traffic in the immediate rear of the battle area. Occasionally, as on 2nd July when 12 Spitfires dive-bombed Mezidon, a specific target was given in advance, but most of these tasks fell to the Typhoon squadrons and the Australians were free to attack any target which offered.

This was a situation very much to the liking of Squadron Leader Smith and his pilots, many of whom had long experience with Spitfires but little previous opportunity to hit the enemy. Very few sorties were entirely unsuccessful even though on occasions only a single enemy lorry set aflame might be the only claim. Lorries, troop carriers, staff cars and motor-cycles became the standard quarry for low-flying attacks both with bombs and gunfire throughout July, but there were occasional skirmishes with enemy aircraft. On 2nd July Flying Officer Olver[5] shared with other squadron pilots the destruction of two FW-190's. On 9th July Smith was leading the squadron in a sweep west of Lisieux at 8,000 feet when a mixed force of more than 40 Me-109's and FW-190's was seen approaching. The enemy had advantage of height and numbers but Smith climbed to attack head on and scattered the German formation. In ensuing dogfights four enemy fighters were claimed as destroyed and five as damaged while the remainder turned tail, leaving the Australians free to continue their patrol, during which 5 lorries and 3 tanks were attacked. On 12th July, while escorting Mitchells on a bombing mission near Chartres, Pilot Officer Cowpe[6] shot down an FW-190, while on 24th July an Me-109 was shot down by Flight Lieutenant McDade, and the other flight commander, Flight Lieutenant Roberts,[7] shared in the destruction of an FW-190.

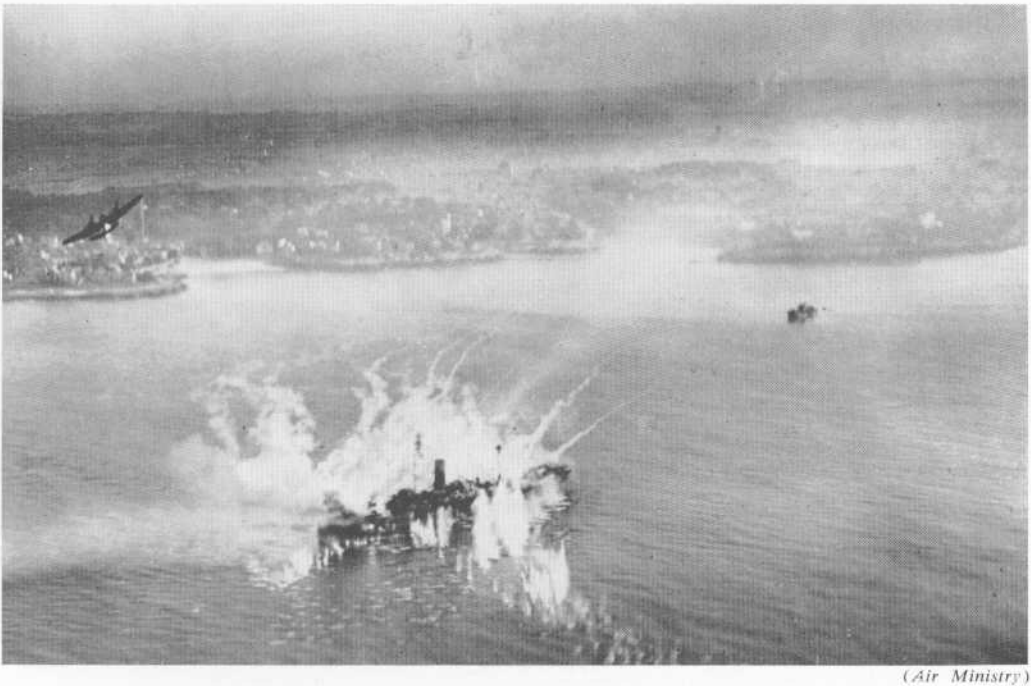
A record number of 60 sorties was flown by No. 453 on 18th July during support for the Second British Army, but paradoxically this was a day of no claims because pilots could not identify or isolate enemy groups in the close-locked ground battle. The next highest effort of 46 sorties on 25th July was far more rewarding with 12 enemy vehicles destroyed or immobilized and four enemy fighters shot down and another probably destroyed. In all 727 sorties were made during July, and, besides its successes against enemy transport, the squadron had practically doubled its claims of enemy aircraft destroyed and damaged. These successes, however, were offset by inevitable losses as low-flying Spitfires were hit by light anti-aircraft fire. Several pilots managed to fly their

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[5] F-Lt J. F. Olver, 408503; 453 Sqn. Bank clerk; of Elsternwick, Vic; b. Melbourne, 9 Oct 1920.

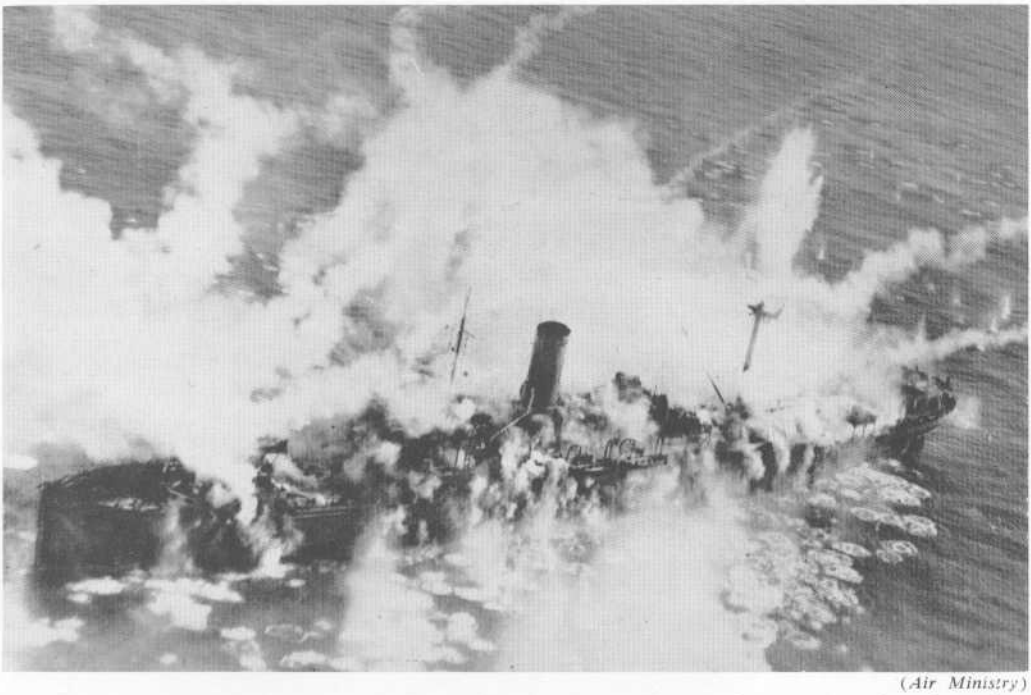
[6] F-O F. F. Cowpe, DFC, 412491; 453 Sqn. Boilermaker; of Rooty Hill, NSW; b. Parramatta, NSW, 18 Sep 1919.

[7] F-Lt G. Roberts, 409322. 16 Sqn RAF, 453 Sqn, 66 and 74 Sqns RAF. Radio mechanic; of Balwyn, Vic; b. Ararat, Vic, 29 Jun 1916.



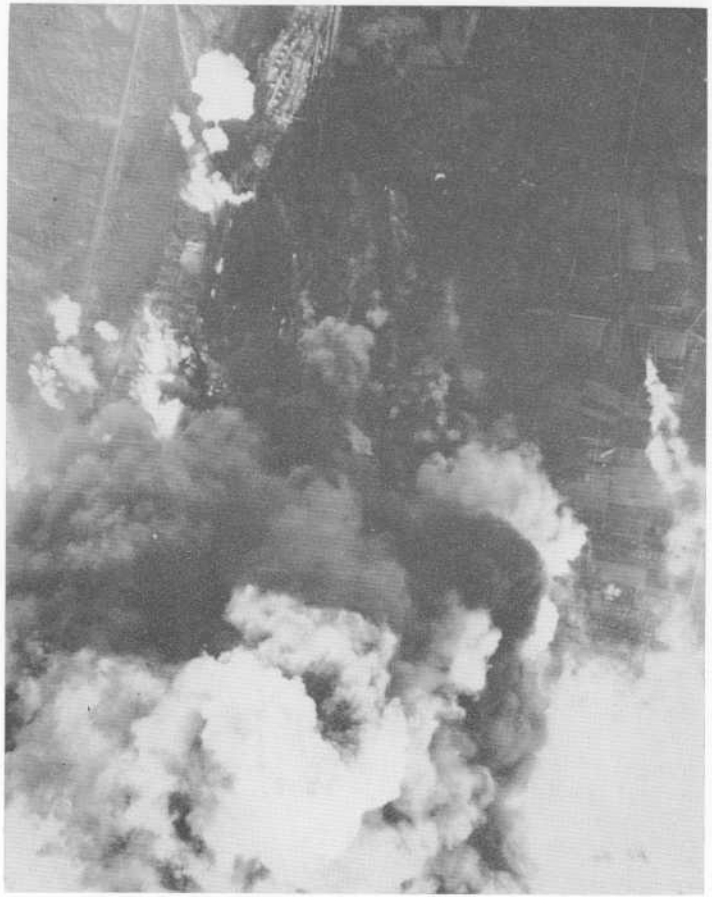
(*Air Ministry*)

Two *Sperrbrechers* anchored off Royan under attack from rocket and cannon-firing Beaufighters of Coastal Command on 13th August 1944.



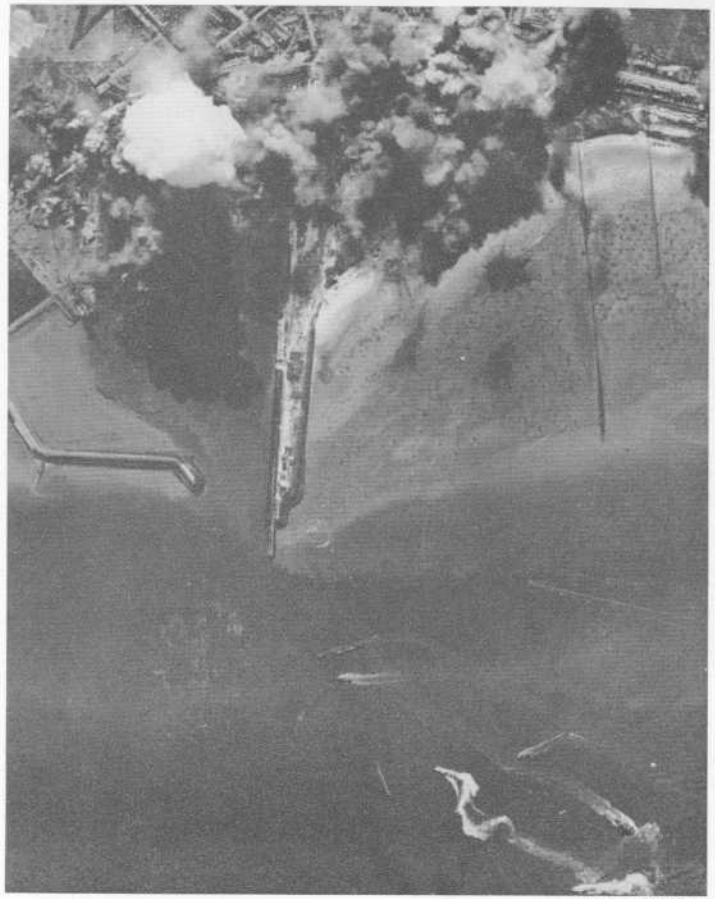
(*Air Ministry*)

The *Magdeburg* smothered in smoke during the attack. Reconnaissance next day showed that one ship had been sunk and the other was still burning.



(*Air Ministry*)

Kamen, an important oil target in the Ruhr, was hit by 116 Lancasters of Bomber Command on 11th September 1944. About 600 tons of bombs were dropped on and round the plant which remained inactive for the rest of the year.



(*Air Ministry*)

Breskens, on the Scheldt estuary, was also attacked on 11th September by Mitchells and Bostons of Second T.A.F. Ferry boats, carrying German troops, are taking evasive action.

aircraft back to the Allied lodgement area but others crash-landed in enemy territory.[8]

Armed reconnaissances and patrols continued during August, the squadron moving to a new airfield near Lingevres on the 13th only to be bombed next day by one audacious enemy plane which dropped anti-personnel bombs killing one and injuring three other Australian pilots. A rich harvest of 57 enemy motor-vehicles destroyed or damaged had been reaped during 60 sorties on 7th and 8th August when the First Canadian Army pushed towards Bourguebus ridge (operation Totalize). The R.A.A.F. pilots expected the final break-out of Allied forces to give even greater chances and, after a dive-bombing attack on a *château* near Evreux on 14th August and other dive-bombing tasks at Vimoutiers next day, they returned to the dangerous but exhilarating low-level road-strafing duties. With the Canadians at Falaise by 17th August and Patton's troops moving from Argentan to close the narrow mouth of the pocket encircling the *Seventh German Army,* enemy transports crammed all the roads back across the Seine. Scenes of incredible carnage occurred as Allied aircraft at times queued up to attack. On 18th August No. 453 alone in 39 sorties claimed 45 vehicles destroyed and another 49 damaged. Forty-one sorties on the 19th had further success, but worsening weather on the 20th restricted flying, and next day prevented it entirely. The Australians, now equipped with Spitfire Mark IXE aircraft with heavier machine-guns, had to sit on the ground while the congested roads slowly cleared.

Meanwhile, throughout July 1944 Australians serving with Coastal Command continued with the same tasks and objectives as during the initial assault. German U-boats from the Biscay ports made renewed attempts to enter the English Channel while on the eastern flank fast, light, torpedo craft also attempted to attack the vast congregation of Allied supply shipping which was then pouring men and supplies into the lodgement area. As with the land battle, however, a sense almost of stalemate prevailed in anti U-boat operations. Liberator and Sunderland aircraft maintained round-the-clock visual and radar searches in the western part of the English Channel but they could not entirely deny the passage of U-boats equipped with *Schnorkels* which could operate for long periods without surfacing except for occasional minutes. While air patrols could not entirely prevent enemy submarines from reaching the mid-Channel area, Allied shipping losses were surprisingly small, the tonnage lost in this area being less than from mines dropped by the *Luftwaffe*. The U-boat, in fact, from being the hunter had become largely the hunted, moving only furtively, and lacking initiative and opportunity to position itself for attack.

At Mount Batten Wing Commander Gillies inspired his young crews and veteran ground staff to maintain their previous high serviceability

[8] W-O R. Lyall, of Geelong, Vic, who was shot down on 12th July 1944 was captured by the S.S. but escaped from prison camp and rejoined the squadron on 18th August. Two other pilots were hidden by French peasants and also rejoined the unit when the Germans retreated.

and flying records. Flying only by day, but almost every day, a total of 945 operational hours were flown by Sunderlands of No. 10 Squadron during July. Fifty-six patrols each of an average duration of 12 hours were made in the small rectangular "boxes" of the Cork barrier across the entrance to the Channel; 22 Rover patrols were flown complementary to the box pattern and six special creeping line-ahead searches were made as follow-up action to reports of possible sightings made by other squadrons. Most of these flights were uneventful but on 8th July 1944 the squadron scored its first major success for six months when Flying Officer Tilley[9] attacked and sank *U243* in position 130 miles south-west of Brest.

Tilley's patrol began at 7.50 a.m. and his crew had strained their eyes scanning the sea for nearly seven hours when suddenly at 2.35 p.m. they saw a fully-surfaced 500-ton submarine travelling northwards at a speed of 8 knots. Tilley dived immediately to attack, and when he had narrowed the range to two miles he had to face gunfire from the submarine, which remained surfaced. He continued a jinking approach and the Sunderland's front gunner, Flight Sergeant Cooke,[1] replied to the enemy fire with his machine-guns, sweeping the U-boat deck so effectively that he had silenced the guns by the time Tilley flew overhead and dropped six depth-charges from a height of 75 feet. The last two charges in this stick straddled the U-boat between its stern and conning tower. The Sunderland then circled while radio messages were sent to base. The U-boat was seen to be settling by the stern and to be stationary, and, although its guns were again manned and fired for a few minutes, at least some of the crew were seen taking to life-rafts. A second R.A.A.F. Sunderland then arrived and delivered an attack, closely followed by yet another made by a Liberator which had intercepted Tilley's radio report. Neither of these additional attacks did more than hasten the end of the already foundering submarine, which finally sank at 3.10 p.m., leaving a number of survivors in the water.

When the second Sunderland resumed its original patrol the crew had the frustrating experience of sighting a second U-boat surfacing in position 30 miles farther north but, having already expended its depth-charges, only an attack with machine-gun fire was possible, and the enemy dived unscathed. This Sunderland reported the sighting and remained circling, but no further contact was made.

Thereafter only minor incidents occurred. On 11th July Flight Lieutenant Paech[2] reported sighting what appeared to be a *Schnorkel,* but further search revealed no positive evidence of the presence of a submarine and, indeed, as whales were later sighted, it is probable that no U-boat was present. Even the most tenuous indication of a U-boat was enthusiastically investigated at this time because crews were constantly

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[9] F-Lt W. B. Tilley, DFC, 418483; 10 Sqn. Commercial traveller; of Garden City, Vic; b. Melbourne, 25 Nov 1915.

[1] W-O L. E. Cooke, DFM, 434243; 10 Sqn. Store assistant; of Blackall, Qld; b. Barcaldine, Qld, 14 Mar 1924.

[2] F-Lt P. A. W. Paech, 421451; 10 Sqn. Bank clerk; of Wellington, NSW; b. Geelong, Vic, 21 Oct 1920.

briefed that, even at the risk of wasted effort, everything practicable must be done to pin down the enemy.[3] On 15th July Paech's crew had hardly reached its allotted patrol area when the port-outer engine of their Sunderland failed at 8.55 a.m. Ten minutes later they saw a U-boat stationary 45 miles north of Brest and, although it dived immediately, Paech remained circling the area sending out homing signals for air and naval support. He marked the position where the U-boat had dived and jettisoned his depth-charges ahead on the probable path of the enemy, but this was a forlorn hope of inflicting damage because of the time interval involved. After a naval escort group arrived at the scene the Sunderland returned to Mount Batten.

Mainly by night during July the daughter R.A.A.F. Sunderland squadron at Pembroke Dock flew 67 patrols, but although the crews of No. 461 investigated a number of radar contacts only once (on the 14th-15th) was a fleeting view gained of a *Schnorkel*; no attack was practicable.

The first half of August, however, brought a reversal of opportunity for the two R.A.A.F. Sunderland squadrons. No. 10 flew patrols at almost the same intensity as during July but all were negative. No. 461 profited from the threat which Patton's break-out into Brittany made to the main U-boat bases between Brest and Bordeaux. At the very time when submarine attacks in the Channel assault area first showed signs of success, the Germans were forced to order all U-boats to leave Biscay harbours and sail to Norway. The urgency of this exodus caused some commanders to proceed surfaced by night and several fierce actions resulted, aircraft joining in the destruction of six U-boats within the space of a few nights.[4] The crews of No. 461 sighted 5, attacked 3 and sank 2 U-boats in this brief spell of activity.

A few minutes before midnight on 8th August Sunderland X/461 captained by Flying Officer Syme[5] homed on a radar echo and dropped flares which illuminated a U-boat in the act of crash-diving. Syme made a steep turn to starboard but passed 50 yards astern of the swirl where the U-boat disappeared and accordingly made no attack. Two nights later Pilot Officer Southall[6] had been on patrol for 4 hours when he sighted a fully-surfaced U-boat in position 150 miles south of Brest. He turned away so that his approach to attack would be made with the enemy lying in the moonpath. No flares were dropped and a stick of six depth-charges was released and seen to fall accurately across the U-boat which lost way and began wallowing. Southall circled and was attacked by heavy but ill-directed gunfire before he flew off to direct a naval escort group

[3] This was another reflection of the vast aerial resources at the command of the Allies. Reserve aircraft could quickly be dispatched to take over the patrol of aircraft investigating a suspicious circumstance.

[4] Naval vessels sank another 8 U-boats in the Bay of Biscay and English Channel during August. With 20 other U-boats destroyed in ports, by mines or at sea in other areas, August 1944 brought the best tally of success against U-boats since the epic battles of July 1943.

[5] F-Lt F. M. Syme, 401630; 461 Sqn. Farmer; of Nyora, Vic; b. Warracknabeal, Vic, 13 Sep 1920.

[6] F-Lt I. F. Southall, DFC, 418900; 461 Sqn. Process engraver; of Surrey Hills, Vic; b. Canterbury, Vic, 8 Jun 1921. Author of *They Shall Not Pass Unseen* (1956), an account of No. 461 Squadron, and other works.

to the area. When he returned there was no sign of the enemy but at 6.36 a.m. on 11th August the badly damaged U-boat was forced to surface again and *U385* was then engaged and sunk by H.M.S. *Starling*.

In the early hours of 13th August Flying Officer Little[7] surprised another surfaced U-boat which was illuminated by flares and then straddled with depth-charges in a swift determined single run despite anti-aircraft fire which began as soon as the flares were released. Once again an escort group was directed to the area and the ships picked up survivors and confirmed that *U270* had in fact sunk. The very next night Flying Officer Alexander[8] made a promising attack against another U-boat in almost identical circumstances, but although shaken by near misses the submarine was able to submerge and escape. The spate of excitement ended on 16th August when Little sighted a *Schnorkel* but could not position his aircraft in time to attack before the U-boat submerged.

While No. 19 Group was thus helping to ensure that U-boats had no decisive effect on the supplies available for the Normandy bridgehead, aircraft of No. 16 Group were active against German light naval vessels at the eastern end of the Channel. Only a few R.A.A.F. aircrew were engaged in the nightly patrols made by radar-equipped Wellington aircraft to discover and report any sortie by E and R-boats. A typical log of operations was compiled by Pilot Officer Ham,[9] a navigator-bomb aimer serving with No. 524 Squadron R.A.F. stationed for a time during this period at Bircham Newton. The Wellingtons flew patrols of six hours duration with the primary object of dropping flares over any hostile craft encountered so that Beaufighters or Allied torpedo boats could attack under favourable conditions. The Wellingtons also carried a stick of six 500-lb bombs and did make attacks if a more powerful striking force could not be summoned. The general effect of this constant pressure was to limit enemy freedom of movement and, although claims in terms of ships sunk were not high, the aircrews had the satisfaction that they were, equally with the anti-submarine squadrons, helping to safeguard the vital cross-Channel supply lanes.

The Australian Beaufighter squadron (No. 455) remained at Langham as part of a composite anti-shipping strike wing. These aircraft scoured the coast between Gravelines and the Hook of Holland in July and the first half of August and made several attacks on E and R-boats, but increasingly emphasis moved from these preventive patrols to a full-scale attack on any shipping moving along the Frisian coast. Thus on 6th July 10 aircraft of No. 455 set off at 7.10 p.m. to escort torpedo Beaufighters of No. 489 (N.Z.) and rocket-armed Beaufighters of No. 144 Squadron and at 9.10 this force found an enemy convoy of 10 merchant ships and 7 escorting mine-sweepers and trawlers near Nor-

[7] F-Lt D. A. Little, DFC, 403934; 461 Sqn. Advertiser; of Bronte, NSW; b. Carlisle, England, 9 Nov 1914.

[8] Sqn Ldr R. R. Alexander, DFC, 428288; 461 Sqn. Estimator; of Castlemaine, Vic; b. Castlemaine, 23 May 1923.

[9] P-O G. W. Ham, DFC, 420468; 524 Sqn RAF. Clerk; of Epping, NSW; b. Clovelly, NSW, 22 Sep 1923. Killed in action 13 Jan 1945.

derney. Under cover of the cannon attack by No. 455 against the flak ships, the strike aircraft swept in and left one merchant vessel sinking and a smaller cargo ship and two of the escorts on fire; rocket strikes had also been seen on other ships. Two Beaufighters piloted by Flying Officer Barbour and Pilot Officer Costello[1] were shot down and another R.A.A.F. Beaufighter was badly damaged by enemy fire but all the strike aircraft returned safely to base.

These brief but very fierce convoy attacks were to become increasingly bitter as the Germans packed more and more anti-aircraft guns on merchant ships and escort vessels, while Coastal Command attempted to put ever more firepower into the screen of cannon, bomb and rocket-carrying aircraft which shepherded the torpedo aircraft into a position suitable for attack.[2] The strike wing was provided with a fighter cover of Mustang aircraft which made their operations independent of cloud cover. This effectively deterred the *Luftwaffe* even in German coastal waters, but, to counter shipborne flak, it soon became necessary to dispatch at least three anti-flak aircraft for every enemy escort vessel reported in a convoy.

As No. 455 supplied the anti-flak element of the Langham Wing it was extremely fortunate at this period to have Wing Commander Davenport as its commanding officer and Squadron Leaders Milson and Wiggins as flight commanders, three of the most pugnacious and inspiring tacticians thrown up in the evolvement of Coastal Command's anti-shipping campaign. All were citizen airmen but veterans in their field. Davenport had graduated from unrewarding and difficult patrols with the makeshift Hampden torpedo bomber; Milson was one of the only-too-few survivors of heroic Beaufort operations from Malta and Egypt during 1942; Wiggins had penetrated the Tobruk defences in a Wellington torpedo bomber and sunk a vital tanker under the very nose of Rommel; they were enthusiastic exponents of the new-style strike wing; each in other times and circumstances would have been an outstanding cavalry leader. Besides personal courage, audacity in attack and care in planning, each was able to inspire junior aircrew to train hard and perform well; they evoked a spirit of dedication in aircrew of No. 455 which ensured a fine temper to the spearhead of attack. Each led several major attacks and by emulation other squadron pilots were to become fearless leaders later on.

From the moment when the Langham Wing found its target and the whole formation wheeled responsive to the leader's terse instruction of, for example, "Target fine on starboard bow 5 miles—prepare to attack—attack, attack", there was no faltering; individual thought and action merged into one composite purpose. One pilot of No. 455 in the forefront of attacks at this time explained his reactions to opening an attack

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[1] P-O J. Costello, 421312; 455 Sqn. Clerk; of Homebush, NSW; b. Strathfield, NSW, 14 Nov 1922. Killed in action 6 Jul 1944.

[2] At the moment of dropping it was necessary for a torpedo aircraft to be flying level horizontally and laterally at a range of 800-1,000 yards and at a height somewhere above 150 feet according to type of aircraft. The speed had also to be between required limits, again according to the type of aircraft.

thus—"I don't quite know . . . but it does give you quite a kick, a sort of exultant, superior, indignant feeling, tempered by being a bit scared. The latter, however, always seems to disappear once you started hitting the target." Irrespective of military results assessable at long range, these convoy actions, with their inevitable emphasis on urgency, danger and personal contribution gave to the strike wings the panache which earlier had distinguished Fighter Command in 1940 or Bomber Command in mid-1943.

The convoy battles were by no means a daily occurrence because German shipping moved whenever practicable by night or in conditions of low cloud or coastal fog. Milson led Nos. 455 and 489 in a joint armed reconnaissance of the Heligoland Bight during the evening of 14th July but there was a thick belt of fog in the patrol area which extended from sea level to 1,000 feet and the sortie proved abortive. Two squadrons from the North Coates Wing were also to take part in this operation, but although they were heard on radio they failed to join Milson's formation. Similarly the Mustang fighter escort was circling Langham as the Australians took off but were unable to maintain position in the bad weather and soon became separated. Weather nearly spoilt a similar operation led by Davenport the next day in southern Norwegian waters, for, although conditions were fine at take-off and in the patrol area, one squadron of rocket-carrying aircraft lost formation in a dense patch of low cloud and rain during the outward journey. When landfall was made at Lister Davenport ordered the remaining three squadrons to fly at 400 feet with No. 455 in the van. Near Mandal one of the flank aircraft reported a convoy of four merchant ships and five escort vessels. A near copy-book attack was made immediately, 3 of the merchant ships (one tanker, one freighter and one cargo liner) and 3 of the armed escort trawlers being set on fire.

On the evening of 21st July another effective strike was made on an unusually large convoy 15 miles south of Heligoland. Milson gave the order to attack at 9.30 p.m. after 9 merchant ships and no fewer than 31 escorts had been identified. The Australians dived into "the heaviest barrage of heavy and light flak and rockets with steel wire attached that had ever been before encountered by aircraft of these Wings". Although four of the R.A.A.F. Beaufighters were damaged none was lost and their action so preoccupied and neutralised the enemy gunners that the Torbeaus of No. 489 were able to secure torpedo hits on four of the merchantmen, one of which was left sinking and two on fire. Six of the escort vessels were also heavily damaged by cannon and rocket fire.

Often the Beaufighter crews stood by for hours in their crew room waiting for sighting reports from reconnaissance aircraft or for breaks in the weather. At other times their patrols would yield only sightings of fishing vessels, gunfire from shore-based batteries as they searched for shipping lying close inshore or, as on 30th July, a battle royal between the escorting Mustangs and German fighters. Some fruitless hours were spent in bad conditions searching for an *Elbing* class destroyer which

had slipped out of Boulogne and was thought to be making its way to Den Helder. On 3rd August Davenport took half the squadron on detachment to Thorney Island for attacks on German torpedo boats operating from Le Havre, and on 4th-5th August, by the light of flares dropped by R/524, bombs were dropped against six R-boats and one armed trawler; although "Christmas tree" explosions seemed to follow one attack it was not possible to confirm that any enemy vessels were sunk.

On 8th August Wiggins led an attack on a convoy of 4 freighters, one *Sperrbrecher*[3] and 9 small flak ships near Egero on the Norwegian coast, one freighter and 7 escorts receiving heavy damage. A successful strike close to Heligoland followed on 10th August when one squadron of the wing lost formation and returned to base so that No. 455 had to undertake full responsibility for blanketing enemy shipborne guns, which were also assisted by near-by shore batteries. Milson determined to attack the convoy of 5 merchant vessels and 10 escorts and although three Beaufighters of No. 455 were shot down, they had done their job so well that the following torpedo-carriers were able to sink a 6,000-ton freighter—a rich prize having regard to the enemy's acute shipping position. Another spirited attack near Heligoland in the early hours of 13th August sank a small vessel of 425 tons, damaged a 3,000-ton freighter and silenced several escorts.

Thus to all Australian airmen operating from the United Kingdom the six weeks of near stalemate in the Normandy lodgement area during July and August 1944 brought ample employment. All except the crews of No. 456, which after a spirited success on 5th July (when three He-177's and a Do-217 minelaying aircraft were shot down) was transferred to defensive duties against the flying-bomb menace, and No. 455, whose main task was general attrition of German coastal shipping, found that their efforts were tied almost directly to the needs of the ground battles. All the R.A.A.F. squadrons achieved or approached new records in terms of sorties flown, but despite this training schedules were also increased.

Veteran crews were reluctant to leave their squadrons for rest periods; new crews began their operations with complete confidence that the air factor would prove decisive. There were few limitations in personnel or material, little effective opposition from the *Luftwaffe*. Morale was high and even when, as with Bomber Command, some airmen considered that even greater possibilities existed away from the battleground itself, allotted tasks were cheerfully and enthusiastically performed. The outlook of aircrew may have been short-sighted and coloured by indoctrination during training; it was certainly tinged by the arrogance of unchecked successes and limitless confidence in the power potential of air superiority.

[3] Converted merchantmen used as anti-aircraft vessels and mine bumpers in convoy escort duties. They carried heavy gun armament, and were specially strengthened internally so that they might not sink if they set off a mine. A device on the bows was reputed to be able to explode mines at some distance.

CHAPTER 11

INVASION FROM THE SOUTH—APPROACH TO THE RHINE

ON 15th August 1944 at the very moment when the whole German defensive front in Normandy was collapsing, Allied airborne and amphibious forces invaded southern France. The enterprise had originated at the Quebec conference in August 1943 as a diversionary operation to be attempted only under favourable conditions, but within two months was reshaped at the Cairo conference as a major assault to take place at the same time as the Normandy invasion, then scheduled for May 1944. When, however, General Eisenhower recast the OVERLORD plan, the extra forces he required left insufficient army, naval or air support for the southern attack. Planning proceeded throughout the early months of 1944, but the needs of the South-East Asian theatre and of the stubborn Italian campaign continued to absorb forces which might otherwise have been collected for this new commitment, which was known in its early stages as ANVIL and finally as operation DRAGOON.

On 26th February 1944 the Italian campaign was given "overriding priority over all existing and future operations in the Mediterranean" and . . . "first call on all resources, land, sea and air" and it became clear that whatever form DRAGOON took it would have to be delayed long after the planned Normandy assault during the first week of June. General Wilson, the Supreme Allied Commander in the Mediterranean, indeed, while striving to build up a composite special assault force, gave consideration to its use not on the French Riviera but for a leap-frog invasion in northern Italy or an attack on Yugoslavia according to circumstances which might arise in those areas. Another proposal was made to commit the DRAGOON forces to help General Alexander to burst the Pisa-Rimini defences and clear the way for Allied armies to flow into Hungary and southern Germany.

Among all these cross-currents the original concept might have been lost but for the relative delay of the Allies in enlarging their Normandy lodgement area. Eisenhower's main need was for a major port through which he could directly channel the vast flood of men and weapons available from the United States. Even when Cherbourg was captured its harbour was not immediately available; the Breton ports were not available and accordingly possession of Marseilles appeared to be more and more desirable with every day of stalemate at Caen. By the end of the first week of July DRAGOON was accepted as an essential operation with one major alteration from the original plan: that beaches near Cape Cavalaire rather than the more heavily defended beaches near Toulon would be the point of attack.

DRAGOON had never received a high priority in planning or execution until a month before the attack was to be launched. The forces avail-

able, although rather motley in character, were by no means insignificant. Three American assault divisions and airborne units of the Seventh Army were to be followed ashore by French divisions, while it was estimated that powerful groups of the French Forces of the Interior already virtually controlled large areas of southern France from which the Germans had progressively withdrawn their best units for use in Normandy. Six battleships or monitors, 10 aircraft carriers, 21 cruisers and nearly 100 destroyers were available for bombardment of the beaches or to oppose a handful of destroyers and a few U-boats. The *Luftwaffe* had only some 200 aircraft based in southern France and nearly two-thirds of these were trained only in an anti-shipping role; the potential Allied force was nearly 5,000 aircraft of all types.

Despite their apparent numerical superiority over their German counterparts Allied commanders both army and naval were apprehensive about the strength of the enemy coastal defences and demanded the very highest practicable aerial fire support for the invasion. Accordingly on 12th July the M.A.A.F. Outline Plan was issued giving the following tasks and responsibilities:—

(*a*) Strategic Air Forces to be on call for bombardment or other duties as approved by M.A.A.F.

(*b*) Tactical Air Force to be responsible for detailed planning, conduct of intruder operations and protection of convoys within 40 miles of the beaches.

(*c*) Coastal Air Force to be responsible for convoy defence to within 40 miles of the beach-head, for special overseas reconnaissance, anti-submarine patrols and air-sea rescue facilities.

These orders created few problems for M.A.S.A.F. which at this time disposed 15 groups of Liberators and 6 of Fortresses plus 10 R.A.F. squadrons of Wellingtons and Halifaxes; bombing was their daily business and from existing bases they could reach out north-west to the Riviera just as easily as north-east to the Danube Valley. Coastal Air Force also was required mainly to carry out its existing functions, although some of its units had to transfer from Corsica to Sardinia to make way for tactical bombers and fighters. M.A.T.A.F. upon which was thrust the burden of getting the troops ashore and then protecting and serving them during the proposed drive north had a more difficult task as it was still heavily committed to support of the Fifth American and Eighth British Armies in Italy. The solution arrived at was to leave Desert Air Force in Italy and to group other elements of M.A.T.A.F. into XII Tactical Air Command, which moved to Corsica where 10 new airfields had been constructed to supplement the four which existed when the island was captured in October 1943.

Corsica was poor terrain for siting airfields; it had only one main port (Ajaccio), and very primitive roads and communication networks except those provided by M.A.C.A.F., and it was scourged by malaria; its only advantage was that it lay within fighter distance of the assault area. XII Tactical Air Command by 15th August had built up its strength to 29

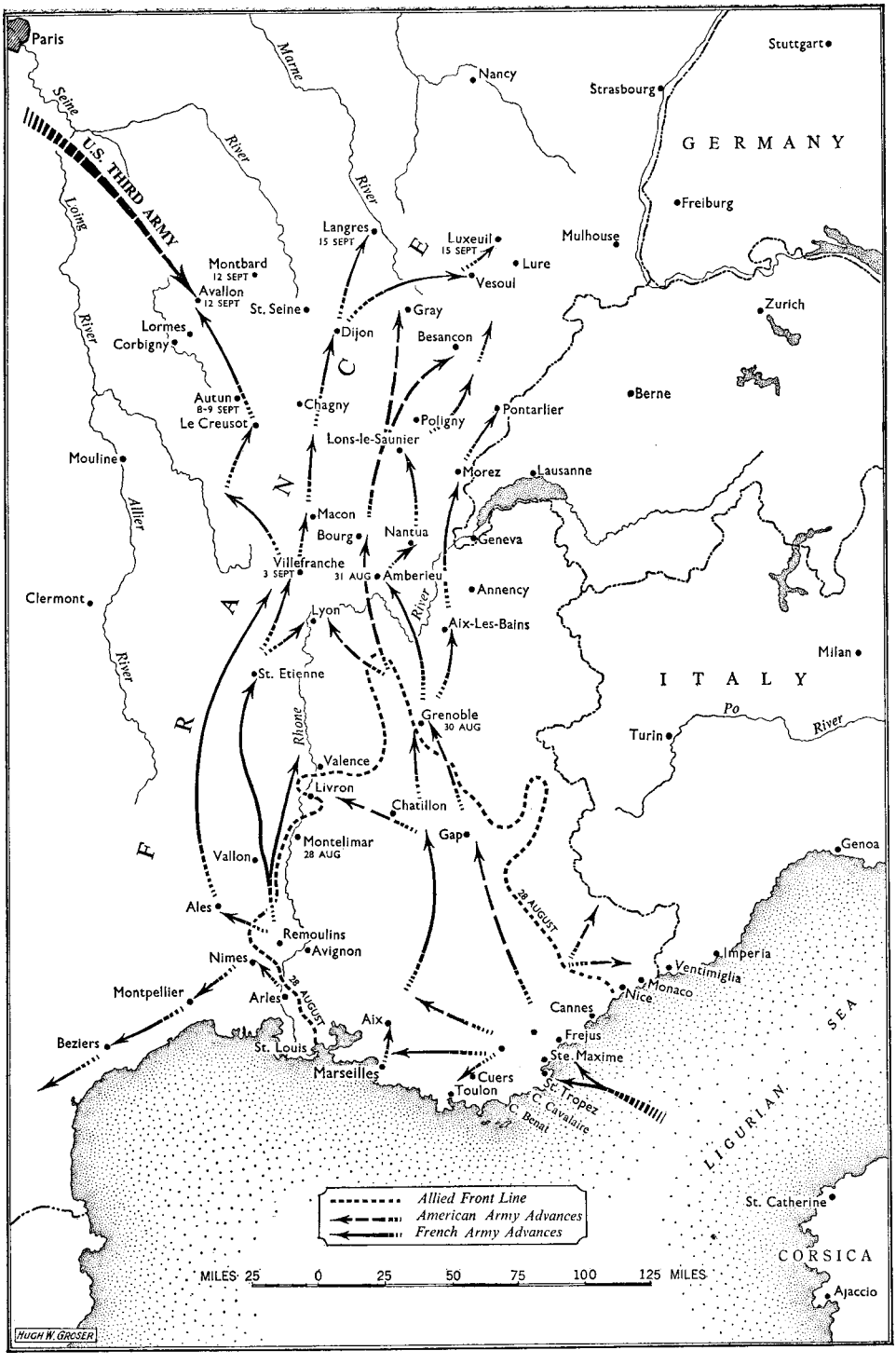
squadrons of fighters and fighter-bombers; 4 squadrons of light bombers, 2 of photo-reconnaissance aircraft, 3 of tactical reconnaissance and 1 night-fighter squadron. In addition it could call upon 28 medium-bomber squadrons and 32 squadrons of troop carrier C-47 aircraft for special tasks. In the beach-head area it would also control seven Fleet Air Arm and three and a half American carrier-borne fighter squadrons. At the time of the DRAGOON assault no fewer than 2,156 operational aircraft were somehow packed into Corsica together with petrol and supplies to keep them in action until they could be established ashore in France.

While these tremendous administrative and supply arrangements were being made American heavy bombers as early as 5th July began raids against marshalling yards, rail and road bridges and later against airfields in the Rhone Valley. The tactical bombers did not enter the campaign until early in August when they assumed responsibility for interdiction of communications (with special emphasis on rail bridges) in the area south of Valence while the heavies struck farther afield. Counter air action against the *Luftwaffe* was similarly shared, M.A.S.A.F. attacking airfields in France and XII T.A.C. those in the Po Valley. The main enemy naval threat was thought to be from U-boats and accordingly Toulon was attacked several times. By 10th August, five days before the opening of the offensive, which had been nominated as the end of the preparatory bombing phase, all air tasks appeared to be well in hand. There had been insignificant enemy air opposition; one U-boat (*U586*) had been destroyed at Toulon on 5th July and four more (*U471, U642, U952* and *U969*) on 6th August; there were significant cuts in main communication and supply routes.

From 10th August the main target for all bombers was the coastal defence system. As in Normandy it was necessary to preserve an element of surprise by attacking batteries, radar stations and troop concentrations over a very much wider area than the intended assault beaches. Only in the early hours of 15th August just before troops were to go ashore were all available fighter-bombers, medium and heavy bombers sent in successive waves to drench the assault beaches.

The main invasion convoys left Oran, Naples and Taranto on 10th August and, protected by fighter and anti-submarine patrols, steamed first to assembly areas near Sardinia and Corsica, and finally on 14th August moved towards the assault area. No enemy air attacks developed although even the strong day and night-fighter patrols failed to prevent German FW-190 and Me-410 reconnaissance aircraft from operating over Corsica. The enemy had no doubt that invasion forces were gathering to attack either northern Italy or southern France, but because of the disparity in air and naval strengths was powerless to interfere.

DRAGOON had been planned, after the bitter experiences of Anzio, in the expectation that resistance would be very strong; accordingly ground, naval and air elements were on a lavish scale even for the task as originally conceived. However, the progressive withdrawal of the most battleworthy divisions and squadrons from southern France to meet



The invasion of southern France

emergencies elsewhere had left very weak German forces in an increasingly hostile country with only a thin crust of coastal defences. Five thousand American and British paratroops landed before dawn on 15th August, followed at 8 a.m. by the shipborne troops who had little difficulty with beach obstacles or batteries, which had been wrecked by air and naval bombardment; glider troops reinforced the paratroops at 9.30 and more parachute and glider operations during the afternoon brought the total number of paratroops landed to 9,000. Above the battlefield all types of Allied aircraft swarmed seeking troublesome guns to silence, bridges to block or enemy troops to harass; no fewer than 4,249 sorties were flown of which 3,936 participated in the ground attack. This was the largest air effort ever achieved in a single day in the Mediterranean and to counter it the *Luftwaffe* flew only 60 sorties including a weak attempt at dusk by Ju-88's to attack the convoys lying off shore. By the end of the day all the beaches were held and some troops were in contact with the paratroops near Frejus. Within a week both Toulon and Marseilles were surrounded and armoured units had struck rapidly north reaching the Rhone below Valence and heading for Lyon. By 28th August organised German resistance had ceased south of a line from Grenoble to Bordeaux, except in the south-east where enemy troops were making a stubborn withdrawal towards the Franco-Italian border.

In this success by sheer weight Australians played numerically a very small part, nor did the nature of operations give them or other nationals opportunities for personal distinction. From one viewpoint DRAGOON appears a magnificent example of air striking power under very favourable conditions. Air superiority was held from the outset; the damage caused by bombing (especially damage to communications) was enhanced enormously in importance because the enemy did not possess as elsewhere adequate military and civilian repair potential; the air effort available was relatively strong enough to punch a hole straight through rather than dent the enemy defences and this meant that with quick exploitation by ground forces the battle turned rapidly and finally in favour of the Allies.

Australian aircrew serving in squadrons of No. 205 Group were hardly called upon to support the invasion of southern France. Throughout July they were occupied with oil targets in Rumania, railway targets at Milan, Brescia and Verona and with mining the Danube River. Only on 24th-25th July was No. 205 Group required to attack the airfield at Valence-La Tresorierie. The object was not only to crater the landing ground itself but to create a diversion while French irregulars destroyed aircraft at their dispersal bays. On 3rd August 55 Wellingtons, 22 Liberators and 8 Halifaxes were sent against marshalling yards at Valence, but the next DRAGOON target was not allotted until 13th-14th August when the eastern half of Genoa Harbour was attacked with 112 tons of bombs. Genoa was the port next in importance to Toulon from which U-boat or light torpedo craft could operate against the invasion convoys. The next night shipping and port facilities in the Basin Lazaret at Marseilles

were bombed, while eight Mandrel-equipped Liberators jammed the enemy early-warning radar so successfully that the parachute transport aircraft and the convoys were able to approach their objectives without being discovered or attacked. The night bombers took no part in the beach saturation program and their last contribution was a repeat attack against Valence airfield on 15th-16th, which failed, however, because thick haze covered the target. Another attack had been projected against the airfield of Toulouse-Blagnac which housed German anti-shipping (glider-bomb) units but this was cancelled. On each of these night sorties the No. 205 Group aircraft had released large numbers of propaganda pamphlets as well as bombs. This activity was the only request made to the night striking force once ground troops were firmly ashore: 3,000,000 pamphlets were scattered on 15th-16th on Toulon, Cannes, Nice, Toulouse, Limoges, Bordeaux, Marseilles and Avignon, urging the local population to assist the Maquis and Allied forces. This special activity continued for a few days but was then unnecessary.

Fighter-bomber and tactical day-bomber support for DRAGOON was supplied entirely by American units.[1] The fighter squadrons of XII T.A.C. were drawn, however, from any source available and included No. 451 Squadron R.A.A.F., which had been transferred from Egypt to No. 251 Wing at Poretta in Corsica in April 1944.

To the pilots of No. 451 the move to Corsica was very popular because it gave them the opportunity of offensive action after months of dull convoy and static defence patrols in the eastern Mediterranean. Beginning on 23rd April they began quickly to adapt themselves to bomber-escort duties and to armed reconnaissance flights, during which they were free to strafe ground targets if no enemy aircraft were found. Flying Officer Wallis[2] claimed a share in the destruction of an Me-109 during the very first sortie to escort American B-25 aircraft which bombed a railway bridge at Orvieto on the 23rd. Some 139 sorties had been logged by the end of April followed by another 484 flights during May, of which the highlight was a sharp air battle between 6 Spitfires of No. 451 and 4 FW-190's chance-met near Roccalbenga (north of Rome) on the 25th. Flying Officers Bray,[3] House[4] and Thomas[5] each claimed the destruction of one enemy fighter with no loss. Under the leadership of Squadron Leader Kirkham and Flight Lieutenant D. H. McBurnie pilots continued to improve their methods of attacking road transport and rail waggons which had not appeared on the squadron's target list since 1941.

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[1] The two RAAF fighter-bomber squadrons (Nos. 3 and 450) and the RAAF light-bomber unit, No. 454, were all in Desert Air Force, which was reserved to support the Italian front.

[2] F-Lt J. D. Wallis, 408541; 451 Sqn. Engineer; of Melbourne; b. Melbourne, 23 Nov 1921. Killed in action 14 Jan 1945.

[3] F-Lt H. J. Bray, DFC, 404324. 123 Sqn RAF, 3 and 451 Sqns. Clerk; of Mooloolah, Qld; b. Nambour, Qld, 13 Mar 1919. Killed in action 14 Mar 1945.

[4] F-Lt E. C. House, DFC, DFM, 406247. 450 and 451 Sqns, 238 Sqn RAF. Farmer; of Gnowangerup, WA; b. Katanning, WA, 29 Sep 1916.

[5] F-Lt W. W. Thomas, 407465. 3 and 451 Sqns. Clerk; of Fullarton, SA; b. Adelaide, 28 Feb 1920.

Despite this encouraging start, No. 451 had had a severe shock at 10 p.m. on 12th May when 25 Ju-88's suddenly appeared over Poretta airfield. In the light of flares the enemy showered the crowded encampment area with anti-personnel fragmentation bombs. The Australians had received no warning and two pilots and six ground crew members were killed; three others were seriously wounded and several more received minor injuries. Only two of the squadron's Spitfires escaped damage, although the maintenance crews were able to make 12 serviceable for operations by the afternoon of the 13th. On 23rd May No. 451 moved with the remainder of the wing to Serragia, six miles south of Poretta, but here again the airfield and domestic quarters were overcrowded and rather surprisingly the *Luftwaffe* made no attempt to repeat its success at Poretta.[6]

During June No. 451 again increased its operational effort to 623 sorties. American bombers were safely escorted on 11 occasions to and from various targets along and behind the Italian front. Fighter sweeps continued and in mid-June the Australians also maintained standing patrols over Elba while French commando troops occupied the island. At various times in June a total of seven enemy aircraft destroyed and one damaged was claimed by the squadron. July brought another change of location, the Australians moving on the 8th to St Catherine where it was necessary to order wide dispersal of living tents and maintenance facilities because the site was very open, making camouflage difficult. St Catherine, however, was close to the sea and very good bathing facilities became available; the squadron diary records . . . "this fact has resulted already in a most beneficial manner upon the health of all personnel". Operations continued on a slightly reduced basis, but there were no clashes with enemy aircraft. A severe loss was felt on 17th July when Squadron Leader Gale, who had taken over command of the unit only a week before, was shot down by ground fire while engaged on a special reconnaissance of the 24 bridges over the River Arno between Florence and Empoli. Squadron Leader Small[7] was chosen to lead No. 451 for the critical invasion period which lay immediately ahead.

It was intended that No. 251 Wing should transfer to a landing ground in France as soon as a big enough foothold had been gained. Accordingly No. 451 divided itself into two parties, one to be detached and sent ahead while the other supported operations from St Catherine. Ground crews and pilots alike felt that they were on the threshold of great events as the 15th August approached and their fighter sweeps began to operate nearer and nearer to Marseilles and Toulon. The daily sortie rate rose in the days immediately preceding the invasion and, although operating

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[6] In fact both Poretta and Alesan (where B-25 squadrons were camped) had been attacked on 12th-13th May. Fourteen Spitfires and 8 B-25's were destroyed while 70 Spitfires and 12 B-25's were damaged.

[7] Sqn Ldr G. W. Small, DFC, 403150. 145 and 238 Sqns RAF; comd 451 Sqn 1944-45. Bank clerk; of Guyra, NSW; b. Kempsey, NSW, 23 Jun 1915.

from an inadequate base, ground crews by literally working round the clock were able to claim a serviceability rate of almost 95 per cent for the R.A.A.F. Spitfires. Although there were no incidents during these patrols, the actual ease with which the landings proceeded on 15th August brought a sense of anti-climax to the Australians. Their beach-head patrols at first between Ste Maxime and Cape Benat consisted only of formation flying over the disembarking troops while the attack fighters and bombers shuttled endlessly back and forth. These negative beach-head duties continued for a week and, even on the occasions when the Australians escorted bombers to the beach-head, they themselves found no opportunity for combat.

So well did the ground fighting go for the Allies that the advanced party of No. 451 left St Catherine on 22nd August—five days ahead of the date fixed in the original plan—and arrived at Cuers-Pierrefus aerodrome on the 25th. Two days later the 16 Spitfires VIII and IX which made up the operational complement flew to Cuers and the rear maintenance party arrived by sea on the 31st. The squadron was thus ready for any tasks available in France but, as they were already out of effective range of the front line, the pilots were employed mainly on shipping protection, standing patrols in the Toulon and Marseilles areas, weather and air-sea rescue flights, with only a very few armed reconnaissance sorties over the Franco-Italian border. September indeed saw only 208 operational flights, and the first fortnight of October (admittedly a bad weather period) only 34. No. 451 felt that it was just as remote from the war as it had been a year before. Then suddenly orders were received to move to Foggia; there were rumours that No. 251 Wing would be transferred to Coastal Air Force. The Spitfires left Cuers on 16th October and, staging through Tarquinia, reached Foggia on the 18th. The ground party left Marseilles on the 17th and disembarked at Naples on the 23rd only to be met by news of another change of plan. When Squadron Leader Small reported to M.A.A.F. H.Q. he was informed that official notice had already been given to R.A.A.F. Overseas H.Q. "that owing to the existing position of the war it was unable to further employ 451 in this theatre and recommended that the unit be returned to Australia".

The operational career of No. 451 in the Middle East thus ended on a note of disappointment. Politically it was unacceptable to return the unit to Australia where existing fighter squadrons were already complaining of under-employment. The unit was not equipped or suitably trained to join the R.A.A.F. fighter-bomber squadrons in Desert Air Force. Finally in November it was decided that No. 451 would be transferred to the United Kingdom. The Spitfires were handed over to No. 251 Wing. There was a flurry of postings, some R.A.A.F. ground staff already earmarked for repatriation being held in Italy to await a ship for Australia; some R.A.F. airmen were released to other Spitfire squadrons while a number of R.A.F. airmen due for return to the United Kingdom were attached to No. 451. On 17th November the squadron embarked at Naples in

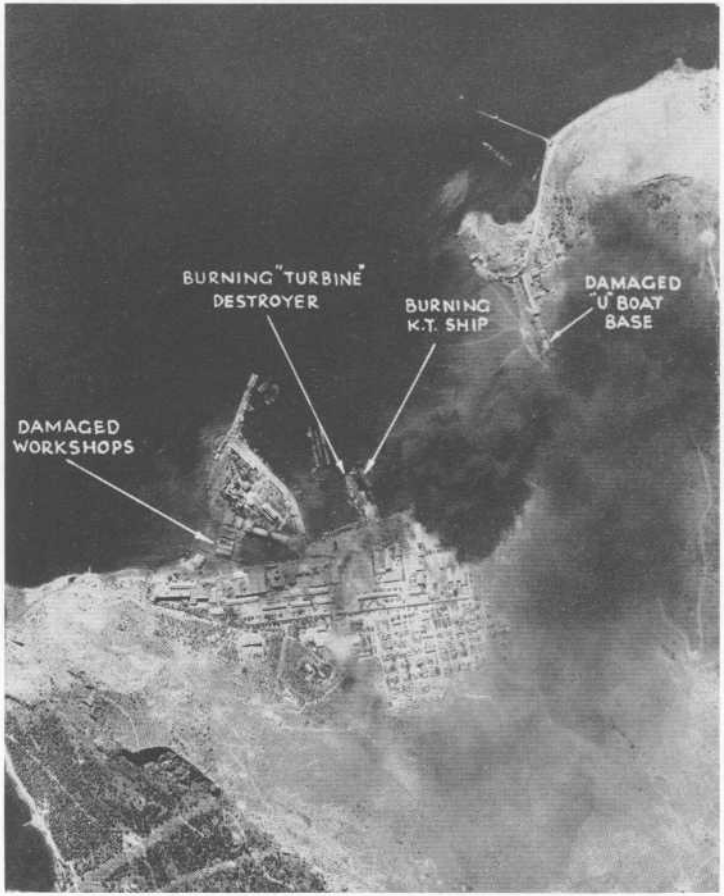
H.M.T. *Alcantara,* sailed for Liverpool and then proceeded to R.A.F. Station Hawkinge on 2nd December.

Meanwhile No. 458 Squadron in Coastal Air Force was also employed throughout July and August 1944 to combat possible enemy reactions to the invasion of southern France. The threatened dangers did not in fact arise so that much of the flying appeared monotonous and negative in character; it was, however, a necessary insurance policy and deterrent in the absence of which the enemy might have been prepared to make a bold stroke against the invasion convoys. No. 458 had been reunited as a squadron at Alghero in Sardinia in June 1944 but had to share the airfield with another Wellington squadron, one of Venturas, one of Marauders, one of Beaufighters and one of air-sea rescue Walruses. This constituted the entire general reconnaissance element of M.A.C.A.F. except for a Wellington squadron based at Foggia; control was simplified even though congestion on the airfield brought difficulties for individual squadrons. June had been spent largely in settling into the new environment but by 1st July, when Wing Commander R. C. Mackay took over command of No. 458 from Wing Commander Dowling, the Australians were ready for a sustained level of operations.

The potential dangers which the general reconnaissance aircraft had to combat were from U-boats and E and R-boats. Both classes of vessel depended on facilities at Marseilles, Toulon and Genoa, so that the first essential was to watch and blockade these ports. Much of this work was done by the general reconnaissance aircraft themselves but regular photographic-reconnaissance flights were requested, especially in relation to Toulon where the remnants of the French fleet (including submarines) were stationed, in addition to German units. As has been seen above, raids by American heavy bombers against Toulon greatly reduced the U-boat menace before the assault phase, but throughout July anti-submarine protection for convoys in the western basin of the Mediterranean remained a routine task for the Wellingtons. Attack rather than passive defence had by this time, however, become the keynote of M.A.C.A.F. tactics. As it was appreciated that most enemy activity would be at night—the U-boats surfacing to move at high speed into attacking positions, and high-speed craft slipping out of harbour to lay mines and make torpedo attacks—all aspects of night training were given high priority.[8] No. 458 continued its own program of Leigh-light tactical training but also began practice flare-dropping to give the Beaufighters of No. 272 Squadron experience in night attacks on shipping. Bombing as well as depth-charge attacks were practised as offering better chances of success against shipping, but only nine of the R.A.A.F. Wellingtons could be suitably modified for a bombing role before the invasion opened.

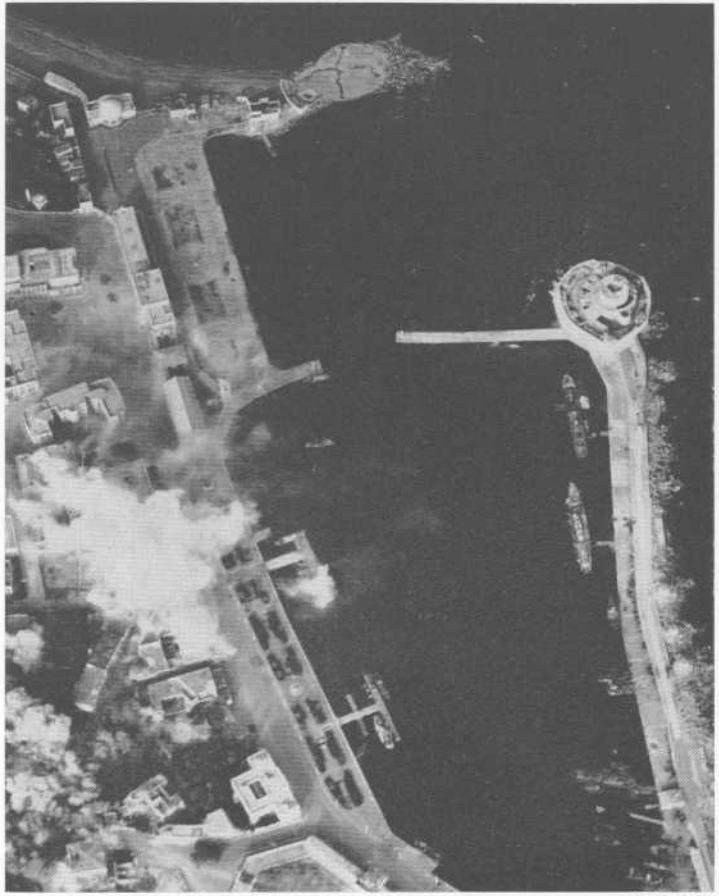
Although no fewer than 37 of their 114 operational sorties during July were on humanitarian air-sea rescue duties, a measure of action

[8] It was estimated that there were nearly 100 craft of various types capable of minelaying in southern France and the Gulf of Genoa. The Germans also controlled elements of explosive motor-boat and human-torpedo units originally developed by the Italian Navy.



(*R.A.A.F.*)

Salamis dockyard in Greece, photographed by a reconnaissance aircraft of No. 459 Squadron eight hours after a raid by Allied bombers on 14th-15th September 1944.



(*R.A.A.F.*)

Porto Mandracchio, Rhodes, under attack by 10 Baltimores of No. 459 Squadron on 19th December 1944. The attacking aircraft were from a detachment based at Mersa Matruh.



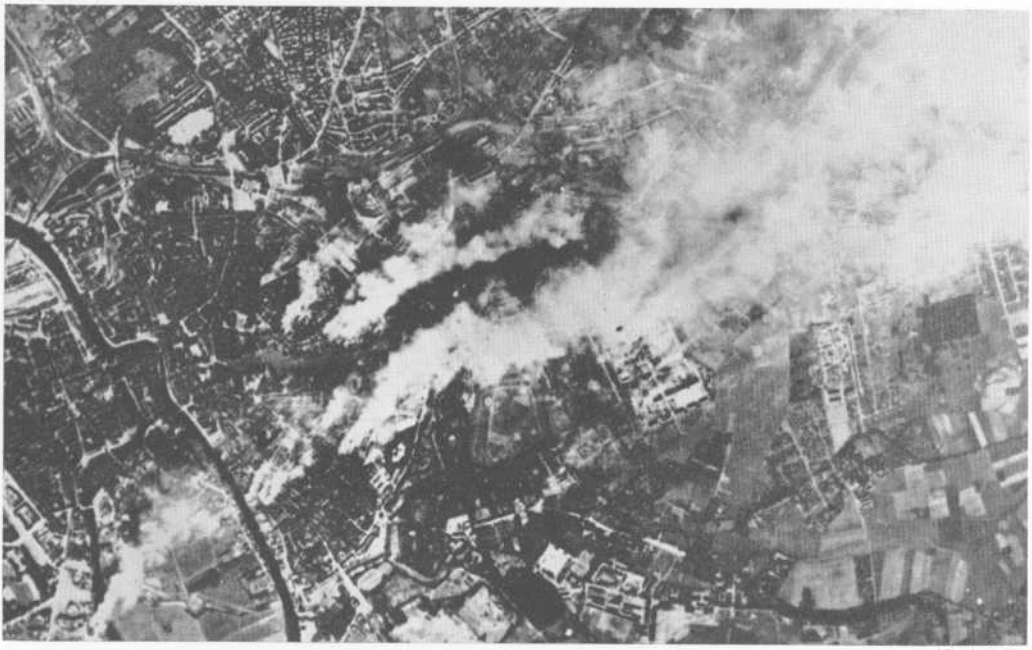
(R.A.A.F.)

F-O's J. F. Watkin and C. Matthew with an Eighth Army spotter at an observation post in an abandoned house watching Baltimores of No. 454 Squadron bombing enemy positions near Rimini, northern Italy, in November 1944.



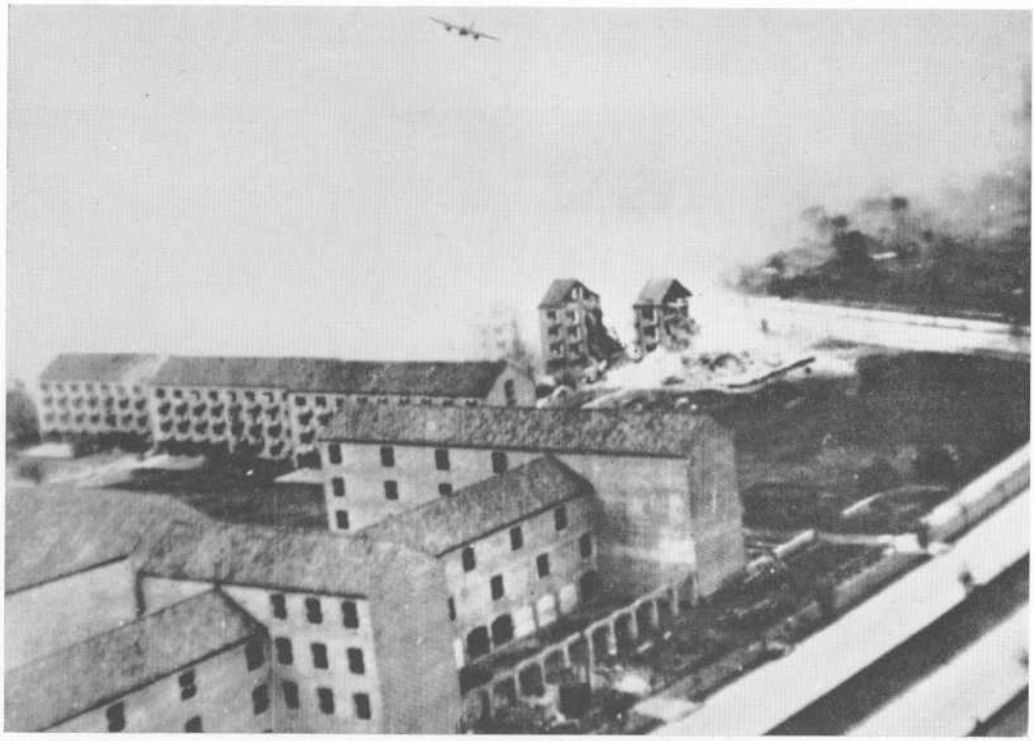
(Imperial War Museum)

Wellingtons of No. 458 Squadron at Gibraltar, February 1945. Because of the renewal of U-boat activity in the area, M.A.C.A.F. ordered the squadron there in January to assist No. 22 (S.A.A.F.) Squadron in its anti-submarine work.



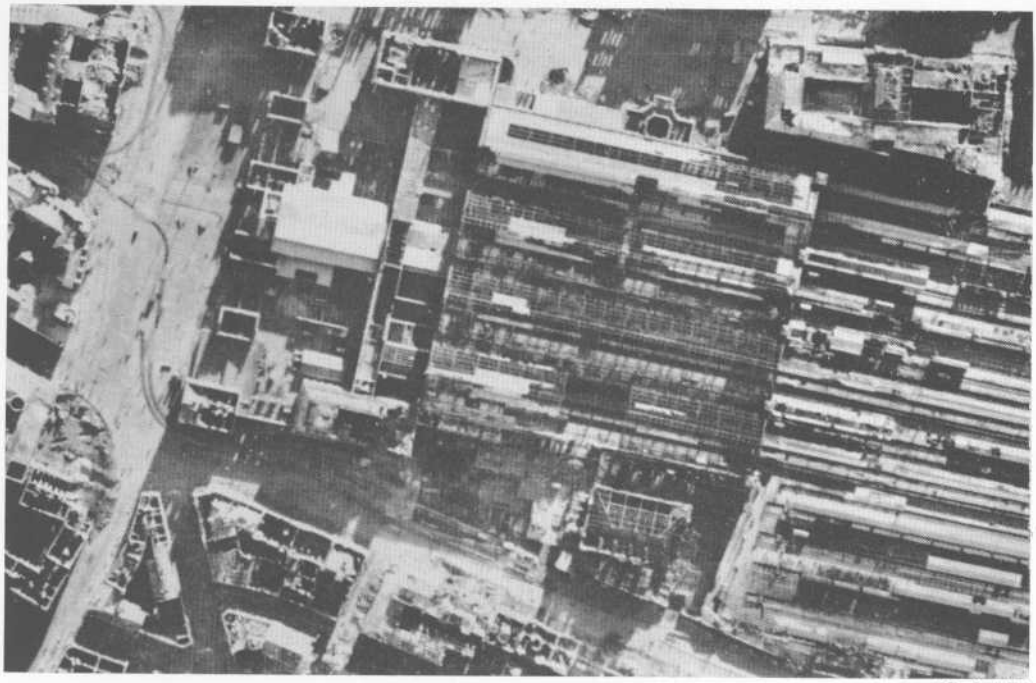
(*R.A.A.F.*)

Konigsberg after an attack on 26th August 1944.



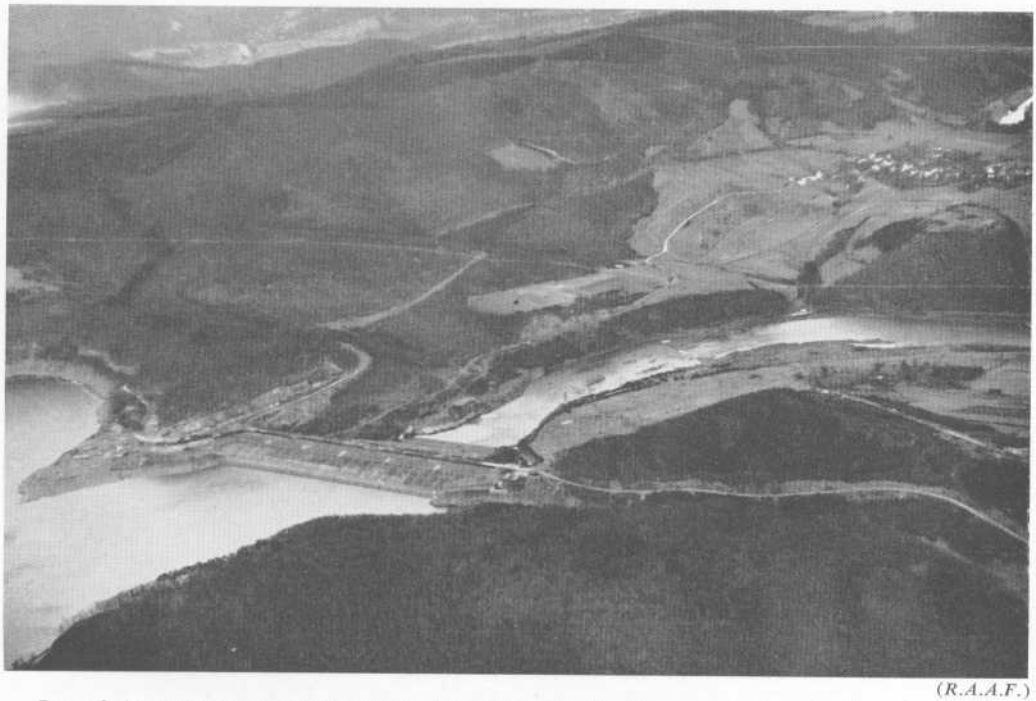
(*Air Ministry*)

Eight Mosquitos from No. 464 Squadron were in a force which made low-level attacks on the Gestapo headquarters at Aarhus, Denmark, on 31st October 1944. As well as damaging the buildings the attacks destroyed records, held by the Germans, of the Danish resistance movement.



(*R.A.A.F.*)

The main railway station at Munich after the Bomber Command attack on 17th December 1944. Thirty-nine Lancasters from Nos. 463 and 467 Squadrons took part in the raid by 270 aircraft which dropped 967 tons of bombs.



(*R.A.A.F.*)

One of the Roer dams shortly before demolition by the Germans to impede the advance of the Ninth American Army in February 1945.

to spur the enthusiasm of crews was not entirely lacking. No submarine was seen on the eight convoy or nine anti-submarine sweeps but in the early hours of 12th July Flight Lieutenant Knight, while patrolling the Gulf of Genoa on anti-submarine duties, sighted an enemy destroyer and a merchantman. Although armed only with depth-charges he attacked in the face of gunfire from both ships and saw explosions close to the destroyer. Three R.A.A.F. Wellingtons sent out on the 22nd-23rd to patrol between Nice and Spezia found no shipping but bombed the Imperia oil refinery where fires were seen still burning three days later. On the 25th-26th five crews similarly attacked industrial targets ashore at Vado Ligure before returning home to report the patrol area clear of shipping. Again on the 28th-29th, when six Wellingtons prowled the coast between Monaco and Viareggio, five bombed railway yards at Ventimiglia while one, captained by Pilot Officer McCann,[9] illuminated and attacked three enemy destroyers south of Sestri Levante.

The Gulf of Genoa continued to be the hunting ground for No. 458 throughout the first fortnight of August but, although on the 4th-5th Flying Officer Aitken[1] was attacked by two night fighters, all these patrols tended to confirm that there was in fact no significant enemy movement either of naval or merchant shipping on this flank. As in July, shore targets such as the Imperia refinery, an ammunition dump at Portofino and oil storage tanks at St Louis were bombed. The only untoward incident came on the 13th when a Wellington blew up after landing at base; one bomb had hung up although the indicator showed that all bombs had been released. This mechanical failure was due to the pervading dust raised by the high level of activity at Alghero. Another source of anxiety was the high incidence of tyre failure caused by the stony, metal-strewn taxi tracks and dispersals, an average of two main wheel tyres having to be replaced each day.

Maintenance difficulties notwithstanding, No. 458 was out almost at full strength on the night before the landings in southern France. Five Wellingtons flew anti-submarine patrols west and north-west of Corsica but there were no hostile sightings. Another five crews were sent on offensive reconnaissance off the south coast of France but, finding nothing to attack at sea, three bombed St Louis and the others Sestri Levante. These armed searches continued for a few nights and led to a spectacular explosion and fire when Flight Lieutenant Armstrong[2] scored direct hits on an oil refinery at St Louis on the 17th-18th, but they were then discontinued as being no longer necessary. Emphasis in fact temporarily swung back to anti-submarine patrols when faulty interpretation of a photograph taken over Toulon on 18th August appeared to suggest that U-boats had left that port. On 20th and 21st August there were two unconfirmed reports of U-boats sighted by non-M.A.C.A.F.

[9] Sqn Ldr J. M. McCann, AFC, 1029851 RAF; 458 Sqn. Clerk; of Manchester, England; b. Prestwick, England, 1 Sep 1920.

[1] F-Lt J. S. Aitken, 420847; 458 Sqn. Pilot and aero-engineer; of Caringbah, NSW; b. Wellington, NZ, 30 Sep 1910.

[2] Sqn Ldr L. V. Armstrong, 81749 RAF. 612 Sqn RAF, 458 Sqn. Student; of London, England; b. 26 Dec 1919.

aircrew and these led to close patrols being ordered around convoys, and other patrols were laid on outside Genoa to which port it was thought U-boats might try to flee from Toulon. The Wellington crews flew many painstaking but fruitless searches until 24th August when the level of effort was reduced.

All anti-submarine operations ceased on 26th August despite another scare raised by a report the previous day of a disappearing radar contact at sea. The false reports on which so much protective effort had been ordered had finally all been attributed to the prevalence of whales which were numerous in the area. This appreciation was confirmed before the end of the month, by which time both Marseilles and Toulon were in Allied hands. No U-boats had in fact sallied forth to oppose the DRAGOON landings; the last three serviceable U-boats had been scuttled in Toulon before 21st August.[3]

No. 458, like No. 451, thus soon found that it was redundant in a military situation in which the enemy U-boats and ships had been forced by Allied naval and air superiority to remain in harbour. The enemy threat in the western basin of the Mediterranean ended with the capture of the French coast. The Australians' 187 operational sorties (each of five hours and a half) during August had assisted indirectly to create this situation, but the reconnaissance aircrews equally with the fighter pilots would have preferred an opportunity of more positive action. Even so No. 458 was more fortunate than No. 451, for the Wellingtons, unlike Spitfires, could quickly be found profitable employment elsewhere. By the end of August the Australians were under orders to move to Ancona for night attacks against enemy shipping and port installations in the northern Adriatic.

So remarkable were Allied victories on all ground fronts in mid-August 1944 that many observers considered that the war in Europe would end swiftly with a total collapse of Germany. In Poland Marshal Rokossovsky's armies were at the gates of Warsaw and the Polish underground army held half that city; Rumania was practically overrun by Russian forces and by 25th August was to change sides and declare war on Germany; in Italy the Eighth Army took Florence on 11th August; it appeared likely that whole German armies might be trapped and engulfed both in Normandy and in southern France. These high hopes faded quickly despite spectacular advances on some fronts in late August and early September. Russian strategy on the Eastern front was dictated by her post-war geopolitical ambitions rather than by desire for an immediate and purely military victory. The Allied High Command showed some indecision in clearly choosing between the differing aims vehemently advocated by American and British commanders. Above all, the Germans at least temporarily proved tougher and more resilient in defeat than the Allies did in attack. Although divisions were actually withdrawn for use elsewhere the Germans were able to stabilise their Italian front in mountainous, easily-defended country. By ruthless decisions and decisive

[3] *U466* and *U967* on 19th August, *U230* on 21st August.

action a surprisingly large proportion of troops, if not of equipment, was extricated from the shambles at Falaise. Once it was obvious that the DRAGOON forces could not be contained in a beach-head the *Nineteenth German Army* in southern France cut its losses and by skilful delaying tactics gave time for itself and the *First German Army* which had been stationed in western France to retreat safely through the Belfort gap before they could be crushed between the pincers of General Patton's and General Patch's forces, which met on 12th September to form a continuous front from the English Channel to Switzerland. Disorganised as were the German armies at this time they had reached good defensive positions while the pursuing Canadian, British and American forces which Eisenhower had committed on a broad front had outrun their supply organisations and in no sector could attempt a vital break-through to the Rhine.

During the three weeks in which the enemy withdrew or was bundled out of France, only the more mobile tactical units of the Allied air forces could keep up with the ground battle. On 23rd August No. 453 together with No. 132 Squadron R.A.F. flew their Spitfires over Paris in a Cross of Lorraine formation as a salute to the liberation of the French capital. Operations were far less satisfying because, as the Germans fell back across the Seine and then the Somme, targets within range became few and far between. There was a brief spurt of interest on the 25th when a group of tanks (probably already immobilized and abandoned) were shot up, an enemy-held *château* destroyed and barge traffic on the Seine heavily attacked. Squadron Leader Smith and two other pilots claimed the probable destruction of three Me-109's on the 26th and there were some minor claims against enemy road transport, but the battleground had moved so fast that even when the Australians transferred on 2nd September to Beauvais it was still far from the front. No. 453 moved again on 5th September to Douai and finally on the 17th to an airstrip near Antwerp. The first fortnight of September was almost entirely uneventful—a meagre 84 sorties producing claims only of four vehicles destroyed. The move to B.70 near Antwerp did however bring No. 453 back into a front-line support area and the Australians were put immediately to work as part of the fighter cover for the Second British Army, then attempting to advance into Holland to link up with embattled airborne forces at Arnhem.

The light and medium bombers had less difficulty with the range factor but it became increasingly difficult to nominate targets which might remain static long enough for effective strikes to be made by units based in England. Thus No. 464 Squadron, except for the daylight raid against Chagny marshalling yards on 22nd August, was employed throughout the latter part of the month on nightly intruder operations against road and rail crossings in the rear of the ever-retreating enemy. Some 140 sorties were made on the six nights when the Falaise "pocket" offered such incomparable opportunities, and another 124 in the last 10 days of the month. Individual results were hard to assess although frequently

bomb and cannon strikes were clearly seen and some spectacular explosions were noted. This constant pressure certainly increased the enemy's difficulties at the Seine crossings, but later, when the retreat line was north of the Somme, targets were more dispersed, and on many occasions the Australians contented themselves with bombing crossroads. By the end of August the Mosquitos were ranging as far abroad as Saarbrucken in their search for targets.

At Thorney Island September began with a day of general bad weather which by early the next day had become a terrific gale. The wind speed rose as high as 60 m.p.h. and blew over several tents and the squadron marquee. This weather persisted throughout the 3rd and finally, at 10.30 a.m. on the 4th, No. 464 was forced to strike camp in driving rain and move into No. 6 hangar and some shared permanent billets. Another two days and nights of wild weather were endured before normal squadron routines were possible. Throughout this period no operational flying was conducted and it was the night of 8th-9th September before eight Mosquitos were able to attack jetties, road bridges and ferries in the Walcheren area of Holland. Two nights later—again at Walcheren—full operations with 17 aircraft were possible, while on the 12th-13th the squadron was out in force over the Scheldt estuary and lower Rhine area to discourage with bombs and strafing any regrouping or reinforcement moves by the Germans. The Australian aircrews had thus some experience of the area when called upon to take a part in the Arnhem operation.

While the tactical forces met the day-to-day needs of the advancing armies Bomber Command was required to make heavy attacks against garrisons and strongpoints left by the enemy in coastal areas. Some of these attacks were for purely naval reasons (attacks on U-boat or E and R-boat pens), some had strategic implications (the destruction of potential blockships before they could be placed into position), others again were meant to assist attacking ground troops to storm a position. Individual raids varied in strength from 10 to 900 aircraft and some ports were attacked for all the above reasons on different occasions. Heavy bombers of the American Eighth Air Force contributed 1,327 and mediums of the Ninth Air Force 5,567 sorties to the general campaign but many of the targets were attacked only by Bomber Command.[4]

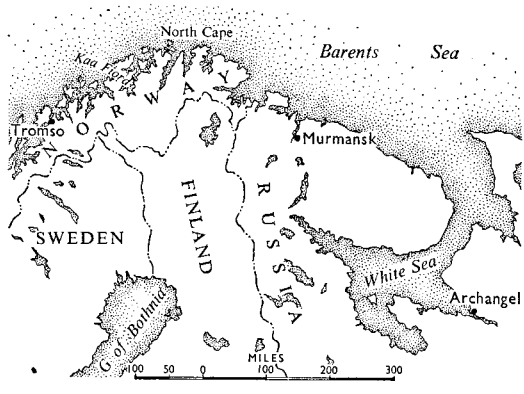
In point of time the purely naval attacks came first, Brest being attacked three times, La Pallice five times, Bordeaux twice and Lorient once between 5th and 18th August. In each case the number of bombers engaged was small, but in this series no fewer than 64 special Tallboy 12,000-lb bombs were dropped by Nos. 9 and 617 Squadrons R.A.F. in an attempt to breach the very thick concrete submarine shelters at these ports. Flying Officers Ross, Lee and Kell of No. 617 and Dunne[5] and Jones[6]

[4] Figures are taken from Leigh-Mallory's despatch which gives the bomb tonnage as 4,501 (Eighth AF) and 4,406 (Ninth AF).

[5] F-Lt J. J. Dunne, DFC, 422148; 9 Sqn RAF. Clerk; of Darlinghurst, NSW; b. Auckland, NZ, 9 Nov 1922. Killed in action 14 Feb 1945.

[6] F-O A. F. Jones, DFC, 426596; 9 Sqn RAF. Farmer; of Tolga, Qld; b. Leeds, England, 5 May 1914.

of No. 9 were engaged on several of these raids. At Brest on 12th August Ross saw several Tallboys including his own fall directly on top of a massive Todt shelter. On the same day No. 460 sent 12 Lancasters against La Pallice and the Australian crews reported that all their early bombing was extremely accurate before the pens were blanketed by smoke. Other direct hits were claimed at La Pallice by Nos. 9 and 617 Squadrons on 18th August. In fact even the 12,000-lb Tallboys and the other penetration bombs used on these raids failed to destroy the shelters or the submarines within them. The destruction of ground equipment and facilities near the massive shelters did, however, influence the enemy decision to evacuate U-boats from all the Biscay ports except La Pallice. At the other end of the English Channel Nos. 9 and 617 on 24th August attacked the E and R-boat pens at Ijmuiden in Holland, Ross again claiming a direct hit with his 12,000-lb bomb on the north-west edge of the target. This tore a hole which measured 94 feet by 30 feet as shown on photographs.



Apart from minelaying in enemy waters, which remained a routine assignment for Bomber Command, the only other naval target at this time was the German battleship *Tirpitz* which lay in Kaa Fiord as a threat to convoys on the Murmansk route. The specialist squadrons of No. 5 Group—Nos. 9 and 617—were again given the task, and on 11th September they flew to Yagodnik near Archangel together with one Lancaster of No. 463 which carried a special film unit to record the attack. After several days of waiting for suitable weather 27 Lancasters attacked the *Tirpitz* with 90 tons of bombs, including 15 12,000-lb bombs, scoring one direct hit and further damage from near misses. Despite careful routeing in an attempt to achieve surprise, the force had been reported by a coastal battery and a smoke-screen enveloped the battleship thus hindering the bomb aimers. Flight Lieutenant Buckham[7] who piloted the special film aircraft confirmed that the early bombing was accurate, then, after circling until the attack closed and the bombers returned to Yagodnik, he himself set course for Waddington. He flew at sea level for most of the journey, in very poor weather. His total flight time from Yagodnik to base was 14 hours 33 minutes—a record for a Lancaster operation. Several Australian pilots took part in this careful attack including Flying Officer Carey of No. 617 who, although his Lancaster had been hit and

[7] **F-Lt B. A. Buckham, DSO, DFC, 420437. 463 Sqn, special duties RAF Film Unit. Clerk; of Penshurst, NSW; b. Goulburn, NSW, 26 Oct 1918.**

badly damaged, made three approaches before he gave the order for bombs to be released.

Meanwhile at Brest interest had quickly turned from anti-submarine operations[8] to attacks against shipping—especially ships which might be used by the Germans to block the harbour entrances. Much of Eisenhower's administrative planning was concentrated on the need for one or more additional ports in France through which his armies could be reinforced and supplied. Brest, which had been the main American disembarkation port in 1917-18, was of special importance and it was highly desirable that it be captured before it could be blocked and wrecked as Cherbourg had been.[9] Accordingly on 14th August No. 5 Group was ordered to destroy the ancient French cruiser *Gueydon* (then employed as a training vessel), a hulk, and a tanker which were thought to be under preparation as blockships. Twenty-eight Lancasters of Nos. 9 and 617 opened the attack against very heavy gunfire which damaged seven aircraft including Lee's. Six crews from each of the Waddington squadrons flew in the main force of 128 Lancasters which was also hotly beset by guns ashore and afloat. One bomb aimer, Flying Officer Chandler,[1] was twice wounded in the leg but continued to direct the approach run and release his bombs before collapsing. Flying Officer Davis[2] of No. 50 Squadron and Flying Officer Lindsay[3] of No. 97 had their Lancasters badly damaged as they approached low to attack (respectively) the tanker and the cruiser. Flight Lieutenant McLean[4] of No. 83, regarded as one of the best blind markers then operating with the squadron, failed to return from this attack. Crews of No. 463 claimed that the tanker was left on fire, and Lindsay and pilots of other squadrons claimed hits on the cruiser.

Further attacks were made by Bomber Command against shipping at Brest on 17th, 24th, 27th, 28th August and on 2nd September, by which time 403 sorties had been made and 1,850 tons of bombs expended in the port area.[5] Typical of these later attacks was the one on the 24th when 53 Halifaxes of No. 4 Group (including 7 of No. 466) concentrated on the hulk blockship which was still triumphantly afloat in the harbour waiting to be towed into position. This main target again escaped in overcast conditions which made it difficult for crews to make visual attacks. Most of the Australians considered their bombs had overshot although some fires were seen in the dry-dock area.

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[8] The hegira of U-boats had begun: see operations of No. 461 Sqn in Chap. 10.

[9] As late as 5th August there were proposals that the forces gathering for the invasion of southern France should be re-routed to Brest instead of to Marseilles-Toulon.

[1] F-Lt F. N. Chandler, DFC, 410214; 463 Sqn. Salesman; of Armadale, Vic; b. Armadale, 11 Aug 1918.

[2] F-O F. N. Davis, DFC, 420642; 50 Sqn RAF. Real estate salesman; of Willoughby, NSW; b. Bathurst, NSW, 16 Mar 1922. Killed in aircraft accident 16 Jun 1954.

[3] F-Lt B. B. Lindsay, DFC, 420216. 630 and 97 Sqns RAF. Clerk; of Grafton, NSW; b. Taree, NSW, 30 Sep 1920.

[4] F-Lt F. E. McLean, DFC, 413091; 83 Sqn RAF. Clerk; of Strathfield, NSW; b. Dorrigo, NSW, 4 Mar 1923. Killed in action 14 Aug 1944.

[5] This is additional to the 56 sorties and 260 tons previously used against U-boat shelters at Brest.

By 25th August it was clear that Brest would only fall after a full-scale ground assault and the VIII American Corps was ordered to attack with continuous air support of XIX T.A.C. with added assistance as required from the Eighth Air Force and Bomber Command. Three hundred and thirty-four R.A.F. bombers dropped 1,200 tons of bombs on gun positions during the night of 25th-26th August but this attack caused only surface damage which the enemy quickly repaired in the absence of ground action by the VIII Corps. The tough German defenders of Brest were not impressed by air bombardment alone and the effort was wasted. Nine Halifaxes of No. 466 were sent on this raid but two crews returned without dropping their bombs and the remainder were not optimistic that any substantial result had been achieved. After further pounding by American bombers No. 5 Group sent a select force of 66 aircraft, including 15 of No. 463 and 15 of No. 467 to attack gun emplacements at Brest in daylight on 5th September. Although the target area was well marked by pathfinders and on this occasion flak was very slight the 384 tons of high explosive dropped in this raid had little effect. Brest was not finally captured until 18th September and then only after the Germans had methodically destroyed the port facilities which Eisenhower had hoped to capture intact. This bitter lesson resulted in a policy decision by which German garrisons holding out on the Biscay coast at Lorient, St Nazaire and Quiberon Bay were not attacked either by air or regular ground forces; they were left to be watched and starved into surrender by local French guerillas.

Two attacks aggregating 200 sorties and 920 tons of bombs were made by No. 6 R.C.A.F. Group against the fortress of Ile de Cezembre before it fell on 2nd September. St Malo had been captured on 14th August but its harbour could not be used because the batteries on Ile de Cezembre commanded the sea approaches. An even more urgent task had then to be met at the major port of Le Havre into which 11,000 German troops had withdrawn. The First Canadian Army, which was responsible for clearing this and other Channel ports, demanded massive air bombardment as a prelude to its own attack. Accordingly on 5th September Nos. 1 and 3 Groups combined to dispatch 348 aircraft (19 from No. 460) in six waves against the enemy headquarters area and troop concentrations in the outer harbour. Squadron Leader Swan of No. 635 Squadron acted as one of the master bombers in an attack which developed in good weather on almost copybook lines. The R.A.A.F. Lancasters flew in three of the waves and all brought back excellent photographs of their bombing points. Few reported any difficulties although Squadron Leader Roberts[6] had two engines and his petrol tanks damaged after bombing from 11,600 feet; no aircraft were lost.

An almost identical force including 24 of No. 460 returned next day to bomb six nominated aiming points, five of which were identified visually. Large fires and explosions were reported throughout the area

[6] W Cdr W. E. Roberts, DFC, 411959. 57 Sqn RAF, 460 Sqn (comd 1944-45). Accountant; of Rose Bay, NSW; b. Auckland, NZ, 25 Oct 1914.

although the weather suddenly deteriorated and the attack on the sixth target was cancelled by the master bomber, five R.A.A.F. crews being ordered not to attack. These two successes were followed by a disappointment on 8th September when Nos. 1 and 3 Groups again returned to attack five more strongpoints, because only 106 of the 333 bombers dispatched bombed before the task was abandoned. A completely abortive mission by 272 Halifaxes of No. 4 Group followed on the 9th when dense cloud from 12,000 feet down to 1,500 completely blanketed Le Havre. Nos. 462 and 466 were both out on this raid but the main force was ordered to return home after the pathfinder markers had been lost from view almost as soon as they were released.

The importance attached to this target was well illustrated on 10th September when two attacks were made. Early in the afternoon a small force of 69 aircraft from No. 4 Group attacked a coastal defence battery. Thirteen crews of No. 462 (out of 16 dispatched) returned with aiming point photographs as did 13 (out of 14) of No. 466. This successful spot attack was followed almost immediately by a drenching shower of 4,700 tons of bombs dropped on gun emplacements and strongpoints by a fantastic armada of 930 heavy bombers drawn from all groups of Bomber Command. Twenty-six Lancasters of No. 460, 20 of No. 463 and 21 of No. 467 found conditions ideal for bombing until the very end of the raid when a vast pall of smoke and dust hung over Le Havre. Australians were again well represented in the final raid of the series on 11th September with eleven Halifaxes from each of the Driffield squadrons and nine Lancasters from each of the Waddington squadrons—40 aircraft in a total force of 218. Bombing was again well concentrated until the aiming points were obscured by smoke.

Ten hours after the final Bomber Command attack the German garrison at Le Havre capitulated to two Allied divisions which had begun a full-scale assault on the night of 10th-11th September. The enemy defenders and defences had been so stunned and battered by the ghastly hail of 9,800 tons of bombs falling within the space of a week that casualties to Allied troops were very light. The First Canadian Army enthusiastically called for a similar level of air support as it prepared to invest Boulogne, and this demand was met on 17th September by a composite force of 742 bombers which in four hours hit seven selected aiming points with nearly 3,400 tons of high explosive. This was an early morning operation and No. 460, which had been out during the night to attack Rheine-Salzbergen airfield, was not included in the force, but 25 Halifaxes of Nos. 462 and 466, which attacked between 8.49 a.m. and 8.59, and 35 Lancasters of Nos. 463 and 467, which followed between 9.40 a.m. and 9.50, all reported satisfactory attacks. The enemy garrison at Boulogne finally surrendered on 22nd September.

Between 20th and 28th September Bomber Command made six attacks against enemy-held defences in and around Calais during which 8,000 tons of bombs were used. The series began well with a heavy raid by 646 aircraft (27 of No. 460) but on 24th September No. 5 Group

were faced by a combination of bad weather and strong anti-aircraft fire.[7] Attacks on two of the five aiming points were abandoned and one-third of the force returned to base without bombing. Attacks on the remaining positions were made at very low level from below the overcast but were relatively expensive, among the eight Lancasters failing to return being two piloted by Flying Officers Brown[8] and Jones[9] of No. 467. Many other aircraft were damaged by flak. Squadron Leader Smith[1] of No. 635, one of the master bombers, was forced to withdraw temporarily when his aircraft was badly damaged, but he regained control and directed the attack on one aiming point until all had bombed. Flying Officer Roberts[2] of No. 35, although his own aircraft was badly holed, took over control at another aiming point when the master bomber was forced to return to base, but despite such examples of fortitude and determination the raid was only moderately successful.

The entire bomber force except No. 5 Group was sent to Calais on 25th September in what was intended to be an annihilation attack by 875 aircraft, but weather again intervened and only some 300 aircraft attacked. All crews of Nos. 460 and 466 returned on this occasion without bombing but the same squadrons (plus No. 462) had better fortune on the 27th when Nos. 1, 3 and 4 Groups made a low-level attack with 1,700 tons of bombs. The final effort on the 28th was an anti-climax as only 68 out of 193 bombers could attack.

Linked with the air campaign against Calais were two heavy attacks on 26th and 28th September against fortified areas protecting the German long-range guns at Cap Gris Nez. The first raid by 531 aircraft (including 29 of No. 460, 13 of 462 and 13 of 466) plastered the area with over 2,800 tons of bombs and although the second raid was spoilt by weather more than another 800 tons were dropped. The German garrison at Cap Gris Nez surrendered on 29th September to Canadian forces which next day also occupied Calais.

The employment of heavy bombers on this scale against isolated strongpoints did not escape criticism on the score of diversion of bomber effort from strategic air tasks. Protagonists of the aerial softening-up campaign claimed that some 30,000 prisoners were taken in the Channel ports at a cost of fewer than 1,500 British and Canadian casualties which would have been much higher without the stunning effect of bombing. On the other hand it was argued that over 7,100 sorties (27,500 tons of bombs) on strongholds and another 700 sorties (3,200 tons) on naval targets far behind the front line was an inordinate expenditure in the six weeks

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[7] One Lancaster of No. 463 piloted by Buckham and carrying the special film unit accompanied this force to record events at two of the aiming points.

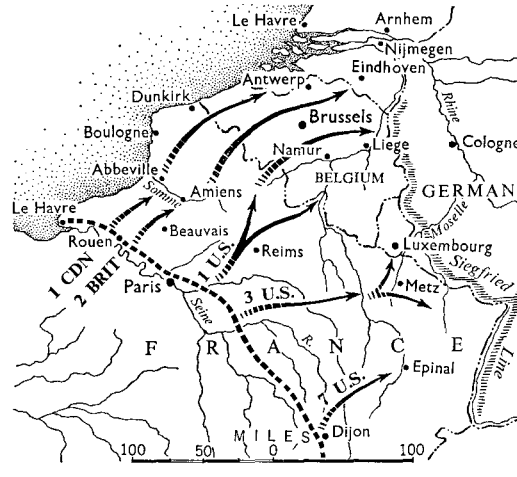
[8] F-O G. A. Brown, 408452; 467 Sqn. Clerk; of Launceston, Tas; b. Wesley Vale, Tas, 19 Dec 1923. Killed in action 25 Sep 1944.

[9] F-O R. A. Jones, 419511; 467 Sqn. Salesman; of South Melbourne; b. Sydney, 26 Jan 1924. Killed in action 25 Sep 1944.

[1] W Cdr F. Smith, DSO, DFC, 412037. 97 and 635 Sqns RAF. Commercial traveller; of Bathurst, NSW; b. Echuca, Vic, 4 May 1915.

[2] W Cdr R. P. Roberts, DFC, 12439; 35 Sqn RAF. Grazier; of Towamba, NSW; b. Gaylong, NSW, 25 Feb 1916.

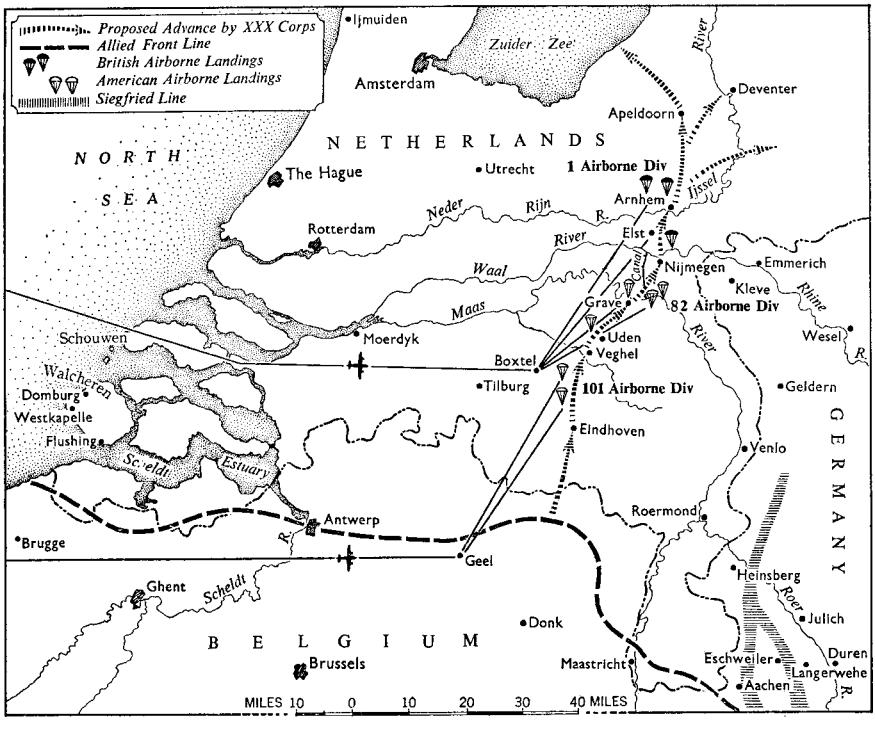
between the bursting of the Normandy deadlock and the end of September. Moreover French civilians in the bombarded areas suffered heavy casualties, which rather offset the humanitarian argument for massive bombing, while the sheer weight of attack also caused material damage to port and general facilities (additional to enemy demolitions) which defeated the prime object of capturing the ports quickly to ease Allied supply difficulties. The need to phase operations against particular objectives at times specifically suited to the ground forces also meant that squadrons had virtually to stand by and miss taking advantage of opportunities of attacking elsewhere. Nevertheless Bomber Command certainly did all that was asked of it during this series of raids and Australian aircrew, despite some disappointments, were well satisfied. Except on 24th September at Calais losses in the air were very light and aircrews were increasingly confident that the heavy bomber was a weapon whose flexibility in attack would be a prime factor in the final defeat of Germany.



While Bomber Command was battering away at Brest and the Channel ports through which major American reinforcements might later flow, the Allied armies, tenuously supplied over long land-routes or by lavish use of transport aircraft, lost the momentum of approach on the broad front ordered by Eisenhower. The Second British Army had taken Brussels on 3rd September and Antwerp next day—but this major port although undamaged could not be exploited while the Germans still controlled the Scheldt estuary. The American armies of Bradley and Patton had driven through eastern France to the German frontier but lacked strength to pierce the strong Siegfried Line and Rhine defences. In this crisis of supply, air power, this time in the form of the First Allied Airborne Army, was called upon to keep the initiative of attack. Several plans for its use were considered but finally it was decided to use Lieut-General Lewis H. Brereton's airborne forces to back a bold plan submitted by Montgomery to outflank the Siegfried Line and cut off enemy forces in western Holland. This at one stroke would permit further advances eastward into Germany and the opening up of Antwerp, which would largely solve the critical supply position.

In this northern sector battered but still powerful German forces held a defensive line from near Antwerp to Maastricht; behind them the rivers Maas, Waal and Neder Rijn and the Maas-Waal canal formed natural

barriers. The plan for airborne assault (operation MARKET) called for simultaneous airborne assault at Arnhem (1st British Airborne Division), Nijmegen-Grave (82nd American Airborne Division) and Eindhoven (101st American Airborne Division) to seize and hold bridges, high ground and defiles. Meanwhile XXX Corps would punch forward on an axis Eindhoven-Grave-Nijmegen-Arnhem (operation GARDEN) linking up with the airborne troops, enlarging the bridgeheads across the natural water barriers, and turning the whole enemy line.



The IX American Troop Carrier Command, and Nos. 38 and 46 Groups R.A.F. were to provide the actual airlift for operation GARDEN, but the combatant air forces, both British and American, were called upon heavily before, during the initial phases and during later developments of the operation, which was finally planned to take place on 17th September. Bomber Command struck at four airfields within range of the dropping zones (including Salzbergen which was bombed by 29 Lancasters of No. 460) during the night of 16th-17th September. Gun positions flanking the Moerdyk bridge were also bombed and similar attacks were made by the R.A.F. early on the 17th against guns on Walcheren which lay along the proposed route the troop transports would take. Seventeen Mosquitos of No. 464 together with other intruder aircraft of Second

T.A.F. were also out on the 16th-17th bombing and strafing roads and ferry crossings. Preliminary air activities were climaxed by late morning attacks made by more than 800 bombers of the Eighth Air Force against 112 gun positions.

Nos. 38 and 46 Groups R.A.F. into whose 15 squadrons some 150 R.A.A.F. aircrew members had by then been posted, were responsible principally for glider delivery and all subsequent re-supply missions affecting the Arnhem sector and for the transporting of British Airborne Corps Headquarters to Nijmegen.[3] These two groups operated Albermarle, Stirling, Halifax and Dakota aircraft with Horsa and Hamilcar gliders, but there were insufficient big aircraft to deliver the entire 1st British Airborne Division to Arnhem in the first wave. This factor, and the choice of dropping and landing zones up to eight miles distance from the main objective, were to prove of special importance. These limitations were imposed on the force to be landed deepest in enemy territory, so there was a corresponding increase in emphasis on the speed with which the ground forces of XXX Corps could advance to achieve a link-up.

The original airborne operation on 17th September was an almost unqualified success. At Eindhoven and Nijmegen troops were dropped or landed by glider in adequate numbers and in correct positions to achieve their initial tasks of seizing river and canal crossings at Veghel and Grave. Fighters of A.D.G.B., Second T.A.F. and American air forces flew close on 1,000 sorties to protect the vulnerable transports, tugs and gliders but there was no interference from the *Luftwaffe*. No. 453, newly arrived at an airstrip near Antwerp within gunfire of enemy positions, flew 32 sorties in the Nijmegen area that day but found no opposition. The element of surprise, careful routeing and the preliminary attacks on German flak positions all helped in the success of these initial lodgements. The same pattern of events emerged at Arnhem where the 12 pathfinder aircraft of No. 38 Group successfully dropped special parties in two locations to set up ground aids for the 358 tugs which arrived 20 minutes later. Flying Officer Blakeney,[4] a navigator of No. 271 Squadron who had previously flown in the Normandy airborne operations, recorded that this initial flight to Arnhem was "a piece of cake. There was no opposition from the *Luftwaffe* and our fighters did a marvellous job on what flak came up from the ground." An Australian pilot of No. 296 was equally enthusiastic. "The Allied airborne army making for the continent looked like a cloud of locusts. I think the whole of the R.A.F. and the U.S.A.A.F. must have been airborne that day. It didn't matter which way we looked there were fighters all round us. It made us feel very happy. The whole of the air and the ground below us seemed to be covered with parachutes and at every available clear spot on the ground there was a glider parked and more were hovering

[3] The US IX TCC was to undertake the main initial parachute drop at Arnhem and complete support for all US forces at Nijmegen and Eindhoven.

[4] F-Lt F. J. Blakeney, 421704; 271 Sqn RAF. Research student; of Sydney; b. Chatswood, NSW, 2 Jul 1913.

round coming in. I don't know how they got in but they did." No fewer than 319 gliders (86 per cent) were released correctly and only seven aircraft were damaged by flak.

Transport aircrew were also well satisfied with the results of the second main airlift of the 1st Air Landing Brigade Group to Arnhem on Monday 18th September although morning fog over England had delayed take-off and bad weather was met on the way. A.D.G.B. fighter squadrons provided effective cover and support and on this occasion 272 tugs (92 per cent) successfully launched their gliders. There had been a marked stiffening of enemy flak, however, and 30 aircraft were damaged. This trend was confirmed during the afternoon when 33 aircraft flew to Arnhem to drop special ammunition and supplies; 2 aircraft failed to return and 14 were badly damaged by gunfire.

Events on the ground had already gravely threatened the whole enterprise. At Arnhem elements of the 2nd Parachute Battalion had reached the northern end of the road bridge but the southern approach was in enemy hands; the rail bridge had been destroyed and the Germans held the pontoon bridge. The remainder of the 1st Parachute Brigade was engaged in bitter skirmishes which were quickly sapping its strength in the western fringes of the town, while the 1st Air Landing Brigade failed to expand the perimeter of the dropping and landing zone sufficiently to prevent German mortar fire from threatening the vital re-supply points. Farther south XXX Corps, with heavy fire support from fighter-bombers of Second T.A.F., had moved forward an hour after the paratroops landed on 17th September but did not make contact with the Americans at Eindhoven until the next day, or with those at Grave until the 19th. German counter-attacks had already shown far more strength and initiative than had been expected and the Allied ground advance petered out, leaving Arnhem isolated.

On the critical day 19th September (D plus 2) when a Polish parachute brigade group and an engineering battalion were scheduled to be dropped at Arnhem, weather once more played the Allies false. The transports were fogbound at their bases and this operation was cancelled, but when visibility improved during the afternoon 44 tugs and gliders were dispatched with heavy weapons and equipment while a total of 165 supply-dropping sorties was approved. Owing to an error in timing the fighter cover was too early and had returned to bases by the time the transports reached Arnhem. With nothing to deter enemy gunners the Stirlings and Dakotas were met by very intense flak. Thirteen aircraft were lost and 106 damaged by flak as the aircrews with single-minded determination lumbered along at low level to ensure that the supply containers fell exactly on the spot ordered. Ironically this nominated dropping point was at that time in enemy hands, but no warning of this had been received.

Low cloud on 20th September again grounded the aircraft rostered to transport the Polish paratroops, but Nos. 38 and 46 Groups began re-supply flights shortly before noon. Fighter support was available on

this occasion but the Germans had also greatly reinforced their anti-aircraft batteries. The British ground troops, pinned down by snipers and mortar fire, had difficulty in laying ground panels to guide the aircrew, who were further hindered by ground mist. Nevertheless although nine aircraft were shot down and 62 damaged, 152 successfully dropped their loads, a good percentage of these supplies falling inside the shrunken perimeter held by the 1st Airborne Division. Further supplies were carried to Arnhem in four waves of transport aircraft on the 21st, but although R.A.F. fighters covered the first movement they were weather-bound for the others while paradoxically FW-190's based in Germany were able to operate freely. Of 117 transports sent out 23 were shot down; a further 7 were damaged by fighters and 31 by flak, while very few of the supplies dropped could be retrieved by the 1st Airborne.

The Stirling aircraft suffered badly that day. Warrant Officer Morris,[5] an air gunner with No. 190, reported later: "We were badly holed by flak over Elst and shortly afterwards we were attacked by enemy aircraft. I managed to hit one Me-109F and saw it catch fire but did not see it hit the ground though I think it was probably destroyed. Our port-inner engine was set on fire and the tail was badly damaged and we received the order to bale out. While I was in the air I saw the aircraft fall to pieces on the way down and crash nose in." Flying Officer Pascoe[6] piloting an aircraft of the same squadron wrote: "There were about 20 enemy fighters (FW-190) attacking each aircraft as we came in and considerable flak. We were hit by flak and crash-landed south of Grave. . . . Our crew had been on this same operation since Sunday 17th September. We had fighter cover the first two days and lost no aircraft. We then had less cover and lost some aircraft. On this occasion, 21st September, we had no cover and we were the only aircraft I saw reach the dropping zone. Three of our flight were seen to crash and I believe the fourth came down. This was due to intense flak and enemy fighters who just peeled off and attacked as our aircraft came in. . . . The Dakotas of No. 46 Group were unarmed and offered sitting targets as they approached the supply-dropping points at an altitude of 1,000 feet and a maximum speed of 110 knots, but there was no faltering." An Australian navigator of No. 271 described the challenge of duty in the following terms: "Losses were very high. At the end of two re-supplying sorties, only one aircraft on the squadron hadn't been holed by flak or fighters. The spirit on the station was better that week than it's ever been."[7]

No supply missions were possible to the Arnhem area on the 22nd but elements of the 1st Polish Parachute Brigade were dropped south of the Neder Rijn River. When good weather at English bases tardily returned during the afternoon of the 23rd, Nos. 38 and 46 Groups sent

[5] W-O G. Morris, 420476, 620 and 190 Sqns RAF. Metal moulder; of Willoughby, NSW; b. Willoughby, 11 Feb 1923.

[6] F-Lt F. E. Pascoe, DFC, 421041, 299, 190 and 46 Sqns RAF. Commercial photographer; of North Sydney; b. Milson's Point, NSW, 28 Jun 1922.

[7] Nos. 38 and 46 Groups flew 1,340 sorties to Arnhem losing 55 aircraft—an over-all 4 per cent. Only three aircraft were lost during the first two days (700 sorties). After that losses were very high.

out another 123 transports which attempted to drop 2,624 supply containers into the now pitifully small area held by the 1st Airborne Division. Again the withering gunfire took a dreadful toll, six aircraft being lost and 63 (51 per cent of those dispatched) damaged, while the dropping area was under such hot fire that many of the containers could not be collected by the men on the ground. This was the last attempt to send ammunition and supplies by air from bases in the United Kingdom. However, one squadron of No. 46 Group had been quickly transferred to Brussels and flew 21 sorties on the 24th, followed by 7 on the 25th, to drop food and medical supplies west of Arnhem. Preparations by this time were already in hand for elements of the Dorset Regiment to cover the withdrawal of the 1st Airborne Division from Arnhem, and under cloak of darkness on 25th-26th September about 2,000 men managed to cross the river and regain contact with the main Allied forces to the south. During the nine days of their epic stand the 1st Airborne lost in killed, wounded and missing about 7,000 men, together with all equipment and gliders.

The failure at Arnhem was principally due to inability of the Twenty-first Army Group to exploit the initially favourable conditions obtained by the other paratroop forces at Eindhoven and Nijmegen. Air power, though used on a massive scale, could neither resolve the deadlock which developed near Elst where XXX Corps, advancing on a narrow front, were effectively blocked by strong enemy armoured forces, nor could it adequately succour or protect the forces thus cut off at Arnhem with no hope of relief from the ground. But although there were errors in planning, errors in execution through poor Intelligence, failure of communications, insufficient forward airfields, and the effect of capricious weather, the conduct and determination of the aircrews matched the heroism of the paratroops for whom they struggled in vain. Over 9,000 sorties were flown by American air units mostly in support of the Eindhoven and Nijmegen landings, but with residual benefit to the situation at Arnhem. Air Defence of Great Britain Command flew 1,746 escort flights in support of the transports, and while the fighters were present they controlled the air. There were no large-scale air battles such as might have been expected and A.D.G.B. lost only 12 aircraft (some to flak) while claiming 5 enemy fighters destroyed. A.D.G.B. from bases in England could, however, operate only for short periods over Holland and when, as in fact occurred, errors in timing or bad weather separated the fighters and transports, the *Luftwaffe* was quick to seize its opportunities. Second T.A.F. operating closer to the battlefield flew nearly 900 sorties but again found the *Luftwaffe* reluctant to join battle, and unfortunately the rocket-carrying Typhoons which could have operated most successfully against enemy flak positions were weathered in at inadequate landing strips during the first three days, after which the situation was beyond their control. Bomber Command was called on for only one task after its efforts on the night preceding and the morning of invasion —to destroy gun emplacements at Domburg. Three raids totalling 179

sorties were made but two attempts were abortive and it was not until 23rd September when the Arnhem enterprise had already virtually failed that Domburg was hit with 185 tons of bombs.

From Antwerp No. 453 flew a total of 210 sorties between Nijmegen and Arnhem from 17th-26th September but the only claims made were on the 23rd when two vehicles and two gun positions were effectively shot up. Operations were curtailed on the 19th and cancelled on the 23rd because of weather, while on this latter date the airfield was still under intermittent shell fire from the docks area which was held by the enemy. Paradoxically, on 27th September after the Arnhem battle was over, the squadron at last found the enemy which it had sought so unavailingly. An early morning patrol of ten R.A.A.F. Spitfires met six Me-109's near Arnhem and Warrant Officer Lyall[8] shot one down before the others fled. Later in the morning another squadron patrol of eight aircraft met a very large force of possibly 50 aircraft again near Arnhem and on this occasion a much more spirited battle ensued. Two Spitfires were shot down but Flight Lieutenant Bennett, Flying Officers Marsh[9] and C. R. Leith and Warrant Officer Taylor[10] each claimed a victim and four other Messerschmitts were damaged. These skirmishes provided a fitting end to No. 453's continental tour with Second T.A.F., for it was ordered to hand over its Spitfire Mark IXE aircraft to No. 126 Wing in exchange for Mark IXB's and was transferred to A.D.G.B. Five uneventful patrols over Holland were made in the IXB aircraft on the 28th, and the next day all aircraft flew to R.A.F. Station, Coltishall, in Suffolk, to take up their new duties. The squadron's mobile servicing echelon, however, was retained in Holland for some weeks to maintain Tempest aircraft at Antwerp and a near-by airfield before rejoining the main R.A.A.F. unit.

The light bombers of Second T.A.F. could not be used directly over the Arnhem airborne bridgehead because of the difficulty of setting a bomb-line. Instead Second T.A.F. attempted to reduce enemy movement by night in a wide arc behind the front from Walcheren to Cologne with special emphasis on crossing places over the River Rhine. Thus on the 19th-20th No. 464 was ordered to patrol water crossings and rail routes in the northern sector. Although the weather was generally hazy only one of twelve crews dispatched failed to find a target. Flight Lieutenant Shrimpton[1] bombed a railway junction, Flight Lieutenant Palmer[2] dropped his bombs on Hillerbeck and Flight Lieutenant Dunkley bombed Peddenberg, while other pilots bombed and strafed lights or moving vehicles seen on roads.[3] Despite this satisfactory beginning, No. 464

[8] W-O R. Lyall, 409160; 453 Sqn. Student; of Geelong, Vic; b. Geelong, 2 Apr 1922.

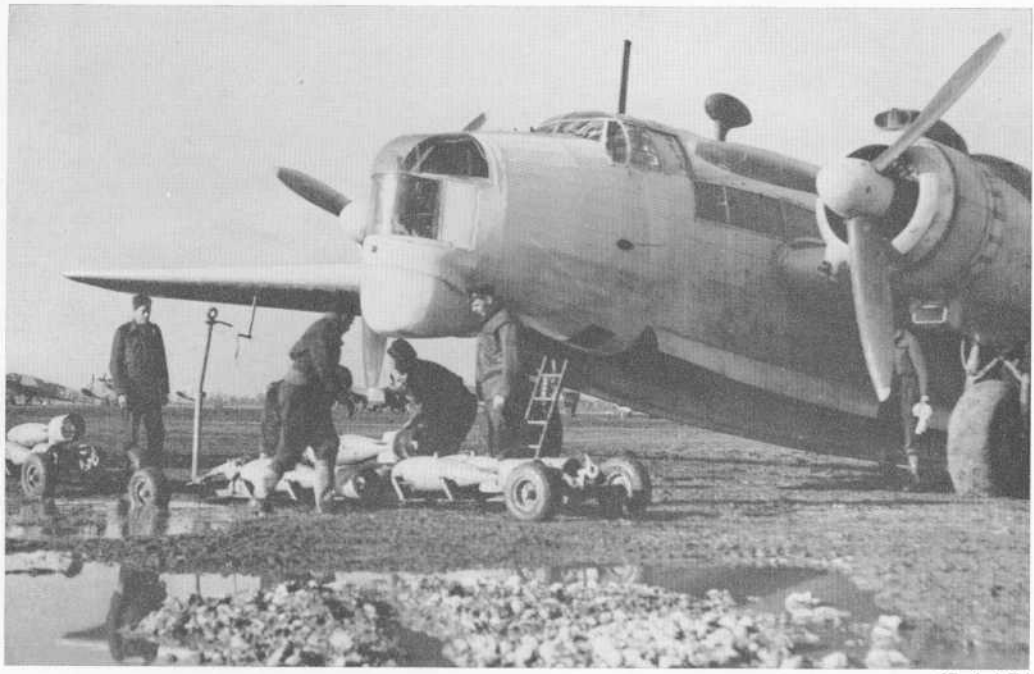
[9] F-Lt N. J. Marsh, 11362; 453 Sqn. Clerk; of Bendigo, Vic; b. Kerang, Vic, 27 Jul 1921.

[10] F-O C. A. M. Taylor, 413620; 453 Sqn. Bank clerk; of Hurstville, NSW; b. Hurstville, 20 Mar 1921.

[1] F-Lt W. K. Shrimpton, DFC, 409324; 464 Sqn. Auctioneer's assistant; of Balwyn, Vic; b. Balwyn, 30 Aug 1921.

[2] Sqn Ldr J. H. Palmer, 409585; 464 Sqn. Clerk; of Ballarat, Vic; b. Ballarat, 3 Dec 1918.

[3] During this night No. 464 exceeded the total of 1,000 operational sorties since the invasion of France on 6th June.



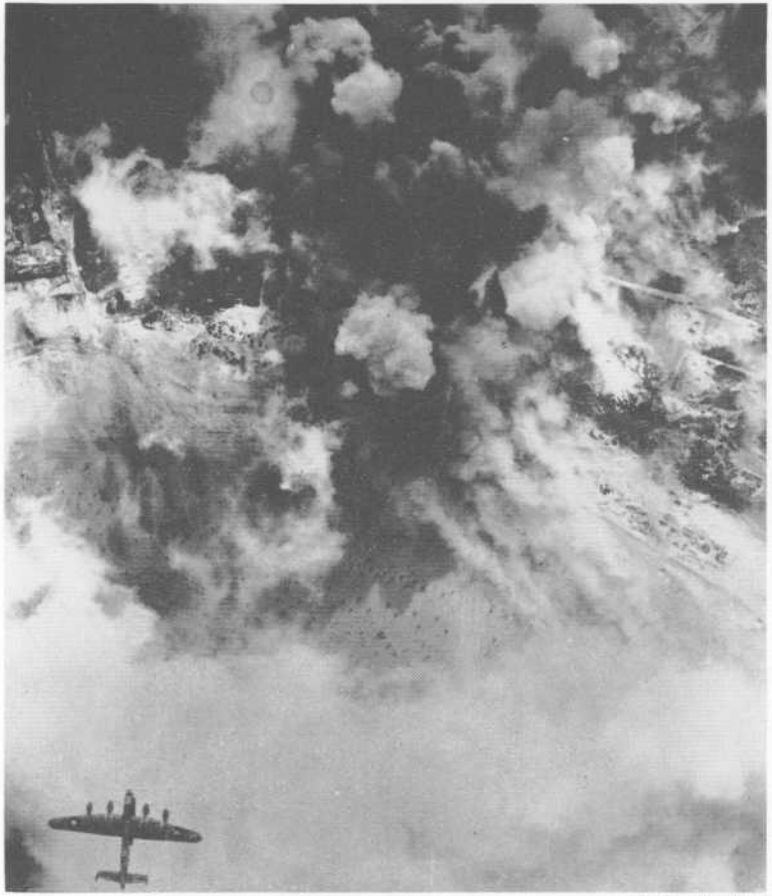
(R.A.A.F.)

A Wellington of No. 458 Squadron at Foggia airfield bombing up for a night anti-shipping strike.



(R.A.A.F.)

Bombay ambulance aircraft were used extensively in Sicily and Italy to transport casualties from the battle area to base hospitals. Here a patient is being carried from an aircraft of No. 1 Air Ambulance Unit R.A.A.F. to a waiting ambulance at an airfield in Italy.



(*Air Ministry*)

By orders of Hitler German garrisons in Le Havre, Boulogne and Calais were declared "fortresses" and their defenders were expected to resist to the last. Calais was the target for Lancasters of Bomber Command on 25th September when 1,300 tons of bombs were dropped in a little under an hour.



(*Air Ministry*)

Halifaxes bombing Calais "fortress" the same day. As a result of the intensive attacks by bombers the German garrison surrendered after five days.

found itself unable to operate again because of weather until the 22nd-23rd, when seven Mosquitos made sweeps in an area extending from Bremen to Wesel and Cologne. Only four crews operated on the 23rd-24th and none the next night, so that even this form of indirect pressure on events at Arnhem was very weak. Full operations were not possible until the 25th-26th, when the remnants of the 1st Airborne Division were already withdrawing, but only 40 sorties over north Holland and the Rhine Valley as far south as Cologne were possible before the end of the month. Some flights were abortive, the Dutch sector providing few opportunities for attack, but trains, barges and motor transports in Germany were attacked. One Mosquito manned by a R.A.F. crew failed to return on the 27th-28th, and on the same night Pilot Officer Doube,[4] a veteran pilot then on his third tour of operations, was engaged by many searchlights and then attacked by two Me-410 night fighters. The Australians began to look forward to a move to continental airfields (long promised but continually delayed) as a means of increasing the effective time on patrol.

The Arnhem operation coincided with a change in role for the night fighters of No. 456 which had been engaged on defensive patrols against flying bombs. All of the German V-1 bases except those in Holland had been engulfed in the swift onrush of Allied armies. There appeared to be little risk that the bomber squadrons of the *Luftwaffe*, starved of petrol, forced to hand over pilots and ground mechanics to fighter units, and now based on more distant airfields, could make any appreciable attacks against British targets. Accordingly the policy by which night fighters equipped (as were the R.A.A.F. Mosquitos) with highly secret types of radar were forbidden to cross into enemy-held territory was reviewed. On the basis that there would be insufficient time for the Germans to use or develop counter-measures against any radar found in crashed aircraft, the night fighters were made available for battlefront patrols in which their tactical qualities could be employed more fully.

This more aggressive policy was accepted with enthusiasm by Wing Commander K. Hampshire who had already begun a program of intensive cross-country training flights to fit his pilots for the new role. On the night of the 16th-17th September four Mosquitos operated from Ford to reinforce Second T.A.F. patrols over northern France. Ford, however, was too distant to permit optimum patrols over Holland so eight R.A.A.F. Mosquitos were ordered to Manston in Kent, and from 21st September flew in support of the MARKET and GARDEN operations. All flights were uneventful, and, although this was satisfactory in the sense that Allied ground forces were protected at night from the threat of enemy air attack, the crews of No. 456 would have preferred heavy clashes more in keeping with the desperate nature of the struggle below.[5]

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[4] F-O G. M. L. Doube, DFC, 400217; 464 Sqn. Musician; of Hampton, Vic; b. Brighton, Vic, 1 Oct 1916.

[5] Between 17th and 21st September when weather hampered RAF night fighters, German bombers had raided Eindhoven and some Allied continental airfields, but after about 100 sorties the German bomber effort lapsed entirely.

Thus the effort exerted by the three R.A.A.F. units, Nos. 453, 456 and 464, had little effect. Indeed, despite the very large Allied air force potentially available, it was found impracticable to employ it in a manner decisive to the battle. Nor, despite its advantages in the matter of weather and in terms of airfield location, did the *Luftwaffe* play any prominent part. The issue was resolved entirely by ground action, and here the Germans once they had recovered from the initial surprise of this daring coup, had better communications, more easily disposable forces, and superior supply facilities. Once the projected Allied armoured thrust from Eindhoven had been blunted and contained, the collapse of the isolated bridgehead at Arnhem was never in doubt.

The failure at Arnhem ended the bright hopes of a quick end to the European war. Some permanent gains had been made by the Allies around Nijmegen and Eindhoven but an obvious stalemate existed. The onset of winter was likely to favour the German defenders and it was inevitable that Eisenhower, except for local actions to improve and strengthen his front line, should be forced to abandon plans for an immediate advance into Germany in favour of solving his pressing logistical problems. The breathing space was, however, equally valuable to the enemy; not only could its ground defences be stiffened but the German Air Force was able to rebuild its shattered fighter arm to meet the needs of the new situation.

CHAPTER 12

ADMINISTRATIVE PROBLEMS, 1944-45

DESPITE the restrictions imposed by most unseasonable weather, June 1944 had been a month of conspicuously high effort by Australians as by all aircrew. Each heavy-bomber squadron had operated on an average once every 48 hours;[1] individual fighter pilots had on occasion flown up to five sorties in a single day; light-bomber crews frequently flew double sorties both by day and night, while No. 10 Squadron had broken the record for the number of hours flown by a Sunderland squadron. There was no halt but rather an intensification in certain respects both of individual and general effort during the next few months. Air power was available and was committed on a liberal even if not prodigal scale to the utter defeat of Germany.

By this time Australian participation had achieved a pattern and extent which was to change little before the end of the war. On 1st July 1944 there were approximately 14,000 R.A.A.F. men in the United Kingdom of whom 12,400 were aircrew, a majority already in or destined for Bomber Command. This was a virtual peak and numbers declined gradually towards the end of the war as reinforcements did not keep pace with casualties and repatriation. On the other hand the numbers actually serving with combat units or commands continued to rise steadily as the large reserve of aircrew at No. 11 Personnel Dispatch and Reception Centre (3,000 on 1st July) was slowly consumed by the needs of advanced and operational training units. The pattern remained that of individual rather than concerted contribution because, although one new *Article XV* squadron was formed in Bomber Command, and although No. 451 transferred to England late in 1944, thus raising the number of active R.A.A.F. squadrons to 12,[2] at no time were more than half the productive R.A.A.F. aircrew disposed with Australian units. Of these 12, only one (No. 10) was the financial responsibility of the Australian Government.

Thus, during the climactic 10 months of the war in Europe the R.A.A.F. force was a loose formation, never very strong numerically, but with a very large proportion constantly engaged on intensive operations. It was almost entirely a non-professional force, and during the battle for Normandy only the two flying-boat squadrons (Nos. 10 and 461) and the night-fighter unit (No. 456) were commanded by regular or semi-regular R.A.A.F. officers, each of whom was replaced by an E.A.T.S. officer on completion of his tour. Later five officers sent from Australia held command in four of the *Article XV* bomber squadrons, but their arrival was

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[1] No. 460 Squadron for example flew more than half the total number of sorties and dropped more than 2½ times the weight of bombs in June, than the aggregate figures for its seven months' operations with Wellington aircraft during the spring and summer of 1942.

[2] No. 459 Squadron later transferred from MAAF to Coastal Command, but as will be seen below could not be made ready for operations and was disbanded before the end of the war.

far too late to give any real cohesion. Australia had found that despite the rigid provisions so earnestly written into the final J.A.T.P.[3] Agreement signed in March 1943, it was too late to put back the clock, and any hope of a truly national force had long since waned. The prime reason was undoubtedly that the constant urgency of, and changes in, the air situation prohibited the emergence of any national force unless adequate administrative arrangements had been made well in advance and a well balanced flow not only of ground and air crews but of senior officers also could have been maintained. Some of these prerequisites Australia was at times unwilling and at times unable to provide.

During the first two years of war the Chief of the Australian Air Staff (Sir Charles Burnett) was determined that nothing should stand in the way of a rapid build-up of the training organisation in Australia and persistently declined to permit senior officers to go overseas except in token numbers. The impact of Japan's entry into the war and the military and political situation which made Australia concentrate on campaigns in the South-West Pacific are detailed in other volumes in this series, but the outcome was that although large numbers of Australian aircrew still went to Europe, they formed a headless group and the men could better be assimilated into the existing framework of the R.A.F. than become a semi-autonomous entity. Even the decision to form an Overseas Headquarters was the shadow rather than the substance, for at first Air Marshal Williams had a very restricted authority and, by the time these powers were widened late in 1942, neither he nor his successor Air Vice-Marshal Wrigley could do much more than retard the centrifugal forces affecting Australian disposition, and repair the worst administrative difficulties arising from wide dispersion.

Had ground crew and senior officers been available from Australia in 1942 in sufficient numbers to leaven the ever-increasing lump of aircrew, Australian organisation overseas might even then have assumed a different form, but, as described in the previous volume, all chance had virtually gone by mid-1943 at the very time when Australian demands were incorporated in the J.A.T.P. Agreement. An impasse had arisen in that the Air Ministry was naturally unwilling to give immediate active posts to Australians who had limited knowledge of European conditions, so that while Williams, Goble and Wrigley were swallowed up by representational jobs in Washington, Ottawa and London and the needs of the South-West Pacific were paramount, the two air commodores who were actually offered to the R.A.F. for active duties, found themselves in backwaters, Air Commodore Cole in Northern Ireland and McNamara in Aden. On the other hand the non-professional aircrew, successful as they proved themselves on operations, were unlikely to throw up quickly sufficient leaders above squadron level to give cohesion to any new grouping of Australians. The relatively few group captains and wing commanders who arrived from Australia during 1942 and 1943 could not bridge the gap in this uneven development and they themselves were mostly needed

[3] Joint Air Training Plan.

initially as squadron commanders, and, through casualties and the needs of Overseas Headquarters, did not provide any appreciable surplus for higher organisation in the field. There was no looking back, for although two young and energetic air commodores were sent in turn from Australia in the last eighteen months of the war and Bladin became Senior Air Staff Officer of No. 38 Group and McCauley,[4] Air Commodore (Operations), Second T.A.F., where each was vitally concerned with operations, they were not close to R.A.A.F. units. By this time J.A.T.P. airmen were experienced enough for unit command, and wing commanders arriving from Australia, although they had superior administrative qualifications, were not eligible for staff posts until they themselves had squadron experience in the European theatre—so that a gap near the top still remained which prevented any compact organisation of Australians.

By June 1944 the idea of a R.A.A.F. Bomber Group within Bomber Command had been tacitly dropped as impracticable, especially in view of Mr Curtin's recent plea that some of the *Article XV* bomber squadrons should be transferred to Australia, a move which many in London thought was dictated by political rather than military considerations. At this time the secondary Australian demand that all men not needed for *Article XV* squadrons should be placed in a restricted number of nominated squadrons was still under active consideration by the Aircrew Allocation Committee, but even this had been shelved by October 1944 as an unattainable ideal. Nor was the hoped-for physical expansion of units ever achieved. By the supplementary agreement of April 1941 Australia was to have 18 *Article XV* squadrons by March 1943 when the original plan was to terminate. She herself, late in 1941, had suggested an increase to 25, and even in the difficult days of 1942 had reserved the right of quantitative expansion when the Joint Air Training Plan was extended for a further two years. In the event only 16 *Article XV* squadrons were in existence in June 1944, of which two were in the South-West Pacific, and only one more was destined to form, so that even the original quota was never completely filled.[5]

Nevertheless, in a minor sense, solidity of Australian effort was achieved naturally by the flood tide of aircrew towards Bomber Command which was still expanding and operating at such a high intensity that, to replace casualties and tour-expired men, it was absorbing a very high percentage of all aircrew in the training pipe-line. The other commands, suffering fewer casualties and with a smaller turnover of crews, found that the reserves accumulated in advance of OVERLORD and the return of men for a second tour met a large proportion of replacement needs. Except in some specialist trades therefore, Bomber Command was the main outlet into operations for the personnel depots teeming with aircrew,

[4] Air Marshal Sir John McCauley, KBE, CB. Comd RAAF, RAF Far East Cd 1941-42; Dep Chief of Air Staff RAAF 1942-44, 1946-47; Air Cmdre Ops Second TAF, European Theatre, 1944-45; Chief of Staff BCOF, Japan, 1947-49; Chief of Air Staff RAAF 1954-57. B. Sydney, 18 Mar 1899.

[5] Two units were formed twice: No. 453 in Malaya (1941) and re-formed in UK (1942), No. 462 in the Middle East (1942) and re-formed in UK (1944). With the disbanding of No. 459 the RAAF ended the war in Europe with only 16 *Article XV* squadrons.

and Australians, even those whose preferences lay elsewhere, were carried uncomplainingly along this channel for fear that otherwise they might not reach a combat unit.



Thus when No. 462 Squadron was re-formed at Driffield, Yorkshire, on 14th August 1944, there were not wanting in No. 4 Group predominantly R.A.A.F. crews to make it a far more Australian squadron than during its previous anomalous existence in the Middle East. No. 466 Squadron aided materially in this formation, providing Wing Commander Shannon[6] to command and Squadron Leaders McDermott[7] and

[6] W Cdr D. E. S. Shannon, DFC, 400493. 99 and 162 Sqns RAF, 466 Sqn; comd 462 Sqn 1944-45. Station overseer; of Geelong, Vic; b. Geelong, 29 Jan 1916.

[7] Sqn Ldr B. J. McDermott, DFC, 207838. 466 and 462 Sqns. Commercial traveller; of Mosman, NSW; b. Mosman, 25 May 1916.

Brophy[8] to take charge of flights, and by this means the unit was able to mount its first raid only 11 days after formation, an achievement second only to that of No. 463 which operated immediately it formed by fission from No. 467. Thus the R.A.A.F. had five heavy-bomber squadrons. No. 460 was at Binbrook in No. 1 Group and, as it had three flights, it was virtually one and a half squadrons. Nos. 462 and 466 were at Driffield (to which the latter moved from Leconfield on 3rd June) in No. 4 Group. Nos. 463 and 467 were together at Waddington in No. 5 Group which had garnered a tradition of semi-independence and aggressive experiment which owed much to such forceful former commanders as Harris and Slessor and which was further brought forth by the existing conditions by which tactical and sometimes strategic targets were raided by aircraft of only one group instead of a main force drawn from all groups.[9] In the other four combat groups of Bomber Command, Australian participation was governed by differing circumstances. In No. 6 Group which was theoretically entirely Canadian there were only a handful of stray aircrew caught up during crewing difficulties at operational training units. In No. 3 Group which had originally operated Stirlings but had turned to mixed units of heavy bombers and latterly almost entirely to Lancasters, a fairly constant 5 per cent of aircrews were Australians. In No. 8 Pathfinder Group, Australians were prominent not only in numbers but also in action, the excitement as well as the greater opportunities for advancement proving a steady lure to the more adventurous; many Australians returning for second tours took great pains to secure a posting to Mosquito squadrons of this group. Lastly in No. 100 Group, which was responsible for radio counter-measures and bomber-support duties, the incidence of Australians was small and mostly fortuitous until 27th December 1944 when No. 462 moved to Foulsham as a complete unit of this group.

The R.A.A.F. thus had three Lancaster and two Halifax squadrons during the final stages of the war. Efforts to keep them filled with Australian crews were on the whole successful. As early as 20th April 1944 Headquarters Bomber Command after consultation with R.A.A.F. Overseas Headquarters, had suggested to the Air Ministry that Australian aircrew trainees who could not be absorbed by No. 27 O.T.U., Lichfield, should be sent to three units backing Nos. 1, 4, and 5 Groups, a procedure which at least would divert them away from Nos. 3 and 6 Groups which had no R.A.A.F. squadrons.[1] This partial concentration had a good

[8] Sqn Ldr J. T. Brophy, DFC, 418734. 466 and 462 Sqns. Architect; of Coburg, Vic; b. Tinamba, Vic, 20 Jan 1914.

[9] There is little doubt that Air Chief Marshal Harris continued to turn a benevolent eye on No. 5 Group in which No. 617 and later No. 9 Squadrons were groomed for special tasks with Tallboy bombs. The daredevil quality which gave rise to the successful but dangerous low-level and off-marking techniques of this group was consciously fostered. Australians no less than others adopted a swashbuckling attitude, so much so that No. 463 received sanction for its official crest motto to be "Press on Regardless", a phrase which, though of very serious intent to the squadron itself had, with peculiar British humour, become a contemporary music hall and mess joke to embarrass the ostentatiously courageous.

[1] The postagram cautiously pointed out:—"It must, however, be fully realised that no guarantee can be given that Australian personnel trained in these OTU's will go to Australian squadrons. The outputs from these OTU's normally go to non-Australian squadrons, and the destination of these crews must depend entirely on the requirements of the Group concerned when the crews have completed their training."

effect, and by October, although Australians were still training in no fewer than 20 Bomber Command O.T.U's, of the 1,687 trainees concerned, 722 were at No. 27 O.T.U. Lichfield, 207 at No. 21, Moreton-in-the-Marsh, 204 at No. 29, Bruntingthorpe, and 286 at No. 30, Hixon; a total of 84 per cent in the units nominated.

The re-formation of No. 462 also brought prompt action from Bomber Command on 23rd August, with a proposal that, since No. 27 would no longer be able to back all R.A.A.F. units, half the capacity of No. 21 should be specifically allocated to meet the needs of Nos. 462 and 466 Squadrons, the Halifax units to be fed by Lichfield, and any overflow of Australians to go to Hixon and Bruntingthorpe. There was some consideration at this time that No. 27 O.T.U. should be closed, but Hixon was nominated well in advance as the alternative main R.A.A.F. O.T.U., and in fact the proposal lapsed, so that the very satisfactory arrangements already achieved were left undisturbed until the end of the war. There was also an automatic concentration of Australian instructors within Bomber Command, men resting between operational tours going in the main to these same four training units.

Nevertheless, although cooperation was eager and constant on all sides, the Australian *Article XV* bomber squadrons were never wholly filled with R.A.A.F. aircrew. The failure of Australia herself to make any consistent effort to provide flight engineers, meant that 14 per cent of each squadron had to be filled by men of some other nationality. Temporary shortages of some categories of Australian aircrew also resulted in mixed crews being formed even at the nominated operational training units, and this inevitably caused further dilution of the squadrons. Other factors were an increase in establishment of crews for all heavy-bomber squadrons, and the rapidity with which men completed operational tours, so that despite a somewhat lower casualty rate per 1,000 sorties, the replenishment need of squadrons tended to outstrip the planned output, so that more and more mixed crews had to be accepted. Thus in actual fact between July 1944 and May 1945 the aircrew complement of *Article XV* squadrons rarely rose above 70 per cent of establishment, and in No. 4 Group fell on occasion as low as 50 per cent, although throughout this period practically all the pilots and navigators were Australians.

Although it was vastly different from the ideal of a national force which had consistently animated Australian conceptions of the Joint Air Training Plan, this partial concentration within Bomber Command and virtual lack of any concentration except for *Article XV* units in other commands during 1944-45, was probably the best that could have been achieved in the circumstances. The great problem was how to make aircrew at all productive, rather than how to group them rigidly according to a national formula. In the field of basic training the J.A.T.P. had exceeded all needs and a build-up of aircrew in the United Kingdom for the summer of 1944 had been planned, but not in the proportions it

actually assumed. On 31st March 1944 there were in all personnel depots 10,500 aircrew waiting to enter advanced flying units. More than one-fifth of this number were Australians, and, despite heavy postings, their number had grown to 3,000 by 30th June, while stocks of other nationals rose in similar fashion. Such a reserve was of tremendous value in case of serious losses or setbacks during the invasion period, but when these did not happen it became an embarrassment rather than an asset. The favourable war situation, the generally low casualty rate, the eagerness of men to return for a second tour of operations during a period when all could scent victory, and a reduction in advanced flying units collectively, had a serious adverse effect on the maintenance of a smooth and balanced flow through the training machine.

For the rest of the war the problem of absorbing into operational units those aircrew who were waiting in personnel reception depots before the invasion was launched presented the utmost difficulty. It was not entirely only a matter of numbers and categories, but the Air Ministry was continually looking ahead from the European to the Pacific war, in which the form of British participation was expected to be fundamentally different from the vast inter-Commonwealth and international air force built up in the United Kingdom. Preparations for a more distinct and limited force reacted on the R.A.F. training organisation, and at the same time imposed fairly rigid restrictions on the choice of basically-trained aircrew who, at this stage, it was worthwhile admitting to advanced training units.

Partial deceleration of the J.A.T.P. had been advocated for many months. The original Riversdale Scheme[2] had envisaged a peak production of 50,000 aircrew annually from all sources. This rate was surpassed by the peak output figures for October 1943, when from Canadian schools alone 5,097 aircrew graduated—a rate equivalent to 61,164 a year—with thousands more being turned out by Australia and New Zealand inside the J.A.T.P., and by South Africa and Rhodesia outside it. Up to this time the only brake on production had been the lengthening of individual courses to secure better-qualified graduates, while on the other hand plans still existed for a further increase in the number of schools, so that theoretically output would rise still higher. The first definite move to limit the flood came early in December 1943 when the United Kingdom requested Canada to restrict the output of pilots, although at the same time an increase was sought in the navigator categories. On 16th February 1944 Britain and Canada agreed to a 40 per cent reduction in both schools and trainees to gear output more closely to probable requirements. Australia had already made a voluntary reduction of 20 per cent in the intake to initial training schools by January 1944, but this was caused mainly by lack of sufficient serviceable aircraft to continue full flying training, and by the increasing difficulty of securing suitable trainees

[2] See Vol. III in this series, p. 3.

in view of the army's reluctance to release men already inducted;[3] but this decline did not affect the drafts going to Canada for further training. In February 1944 Australia was asked to delay as long as possible the dispatch to the United Kingdom of aircrew graduating in March and April, and, although this was countermanded, it revealed the trend of future needs unless wholly unforeseen emergencies should arise.

The first few days of OVERLORD showed quickly that air superiority had been gained over the German Air Force, and drastic measures were taken to diminish the flow of J.A.T.P. aircrew to the United Kingdom. From Australia no pilots or wireless operators who needed further training in Canada were to go overseas after June 1944, and no drafts of trainee navigators after August. Similarly with men already fully trained in Australia, no more pilots were needed at all, and only limited numbers of navigators, wireless operators and air gunners until December when these drafts would also cease. This naturally entailed great changes in the Australian training program, with the disbandment of some schools, reduction in establishment of others, the imposition of very critical standards both before recruitment and during training, and a general change in emphasis to meet only the particular needs of the South-West Pacific.

This reorganisation was not complete when events in France, with the Allied armies breaking from the lodgement area and rushing pell-mell towards the German frontier, caused another radical move. On 9th September R.A.A.F. Overseas Headquarters in London cabled that, as there were still Australian aircrew stocks in the United Kingdom sufficient to meet the needs of all *Article XV* squadrons at least until June 1945, the Air Ministry invited consideration of a proposal to return to Australia all men who were awaiting embarkation or who would subsequently graduate in Canadian schools. The drafts from Australia to Canada had already stopped as agreed in June, but there were approximately 1,750 Australians in Canada for whom no operational employment in Europe could be foreseen.[4] Accordingly on 30th October news was received from Ottawa that all aircrew would be returned to Australia, and 793 had indeed arrived home by 22nd January 1945, when both Canada and the United Kingdom asked for cancellation of the arrangements for the remaining 931 men.[5] This was because of the possible extension of the duration of war in Europe, but it was a considerable embarrassment to the Air Board whose plans had been fully recast by this time. After an interchange of views it was finally decided that most of the men would be repatriated, only the numbers and categories urgently required in the United Kingdom being fed forward.

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[3] Aircrew enlistment figures, including recruits released from the army and remusters within the RAAF, fell from 1,111 in July to 1,038 in August and 762 in September 1943. The acute manpower shortage had led the Australian Government to fix quotas for the Services and industries. RAAF recruiting for all purposes was to be limited to 4,000 per month of which 1,000 were to be WAAAF's. In practice the quotas represented ceilings which were rarely attained.

[4] A few pilots were engaged on instructional duties in RCAF schools, but the need for these would also cease as the whole scheme slowed down.

[5] A few men had already been sent to the United Kingdom to meet special needs.

Between March 1944 and April 1945 5,285 Australians arrived in the United Kingdom and these, with 1,940 on hand at the end of February 1944, gave a total of 7,225 aircrew for reinforcement and expansion of R.A.A.F. effort until the end of the war. This may be compared with the 7,998 Australians absorbed by the R.A.F. during 1943 and a further 1,305 during the first two months of 1944—a total of 9,303 during a similar 14-month period. In fact not all the men could become productive before hostilities ended, because not only were 613 still at No. 11 Personnel Dispatch and Reception Centre, Brighton, at the end of April 1945, but over 1,000 who began advanced training early in 1945 had time to get only part way through their courses. Thus, despite the drastic reduction of flow so that only 1,245 Australian airmen arrived in the United Kingdom during the last six months of 1944 and a further 157 during 1945, compared with 5,181 during the first six months of 1944, there was never any over-all lack of R.A.A.F. aircrew in the United Kingdom either to back the *Article XV* squadrons or for general service with R.A.F. squadrons.

Few Australians (except air gunners) who arrived after the launching of OVERLORD reached combat units, and some who had arrived even earlier still lacked active employment at the end of the war, but their presence was the necessary insurance against large-scale reverses or undue prolongation of the air war such as momentarily threatened during the winter of 1944-45. Although bitterly disappointed the men realised that it was inevitable that some would still be on the sidelines when victory was won. Nor was the total of those failing to become productive from all causes (less than 10 per cent of all aircrew sent to Britain) unduly large in the circumstances, although it would have been much higher had not large drafts been returned from Canada to Australia, and some been withdrawn from the United Kingdom to Australia, or had the reinforcement rate been left unaltered. Quantitatively the J.A.T.P. had more than justified the vision of its planners and the enthusiasm with which it had been carried out. Even had the air war seen a far more bitter struggle, and even had an equally large flood of American airmen not been available, it is probable that the output of aircrew would have outstripped the availability of aircraft or ground staff. As it was, the position was somewhat camouflaged because with all Australian needs in Europe fully met, a large number of trainees available for service overseas were thrust back for employment in the South-West Pacific where possibilities of absorbing all qualified aircrew at this time were even more remote. But although over-production in some ways negated the principle of economy of use of manpower which had been one of the fundamentals of the J.A.T.P., it was a magnificent achievement to be able virtually to suspend output at the very moment when the heaviest employment of air power was just beginning.

No. 11 P.D.R.C. began 1944 at Brighton with very little change in its structure except that special arrangements had to be made to accommodate increasing numbers of aircrew. It was little troubled by enemy air

raids despite its position in the area where the enemy thought preparations for an attack on France were centred; a stray bomb dropped offshore shattered a few windows in the officers' mess and an Me-109 crashed in a churchyard not far from the R.A.A.F. quarters, but otherwise the men saw little of the "baby blitz". Far more onerous for the waiting aircrew were the increased Allied security requirements in the months before OVERLORD was launched. Censorship of mail was introduced and a coastal strip around the east and south of England was declared a protected area with ingress and egress rigidly controlled so that the possibility of leave was greatly restricted. During April the unit was informed that it would move in May to Padgate, a transfer which was completed by the 22nd.

Three days later Wing Commander J. R. Ratten assumed command from Wing Commander Swan,[6] and his prestige as a former Spitfire wing leader was of great advantage in dealing with rather impatient aircrew at this time when their interest was at fever pitch but postings leading to operational employment seemed continually to lag behind the level of intakes. Nevertheless Ratten's administrative difficulties were great. Padgate was a dispersed unit and sections of headquarters were scattered widely, so that with inadequate telephone facilities organisation suffered. Leave was still restricted and accommodation for all ranks was poor, a fertile soil for minor discontents. Normally Padgate was a recruit centre and was equipped with minimum facilities so there was little mess or recreation equipment for either officers or N.C.O's, all men under the rank of flight lieutenant being crowded into airmen's huts. The reception of intake drafts was difficult as Warrington, the nearest railway station was not a terminus, and unloading had to be done hurriedly. Fortunately it was known that the stay was only temporary, and by dint of very strenuous efforts by the overworked staff makeshift arrangements eliminated the worst discomforts and difficulties. The Lady Ryder Organisation, with its unfailing concern for the welfare of Australians, set up a recreation room in the camp and another in Warrington and quickly organised hospitality in the surrounding district, and this did much to make the men forget the inadequacies of Padgate itself. Nevertheless there was great joy when orders came on 21st August for the unit to return to Brighton, and the swiftness of the move, completed by the 26th, was a true reflection of the feelings of staff and trainees alike.

Throughout this period the main problem at Brighton and Padgate was to employ as profitably as possible the time between arrival and admittance to advanced flying training. The three-weeks refresher course in ground subjects and the system of attaching men for varying periods to outside units remained the general pattern of trainee life during the waiting period, but occasionally novel expedients had to be employed. Straight navigators, bombardiers and air gunners passed quickly through

[6] W Cdr A. D. Swan, MBE. (1915-23: 1 Bn Black Watch 1915-18, Waziristan Field Force North-West Frontier 1919-23.) Comd RAAF Stn Darwin and 52 OBU 1942, RAAF Overseas HQ 1943, 11 PDRC 1943-44, Aircrew Officers' and NCOs' Schl 1944-45. Regular air force offr; of Melbourne; b. Perth, Scotland, 19 Nov 1896.

No. 11 P.D.R.C. because there was never a great Australian surplus in these categories, and before long such stocks as there were had to be rationed to ensure future matched crews for the *Article XV* squadrons. Other aircrew had to face very long delays: navigators "B" and navigators "W" because, although their numbers were relatively small, there was practically no call for reinforcements; and pilots and wireless operators because they had been produced in such overwhelming numbers that they could not be absorbed quickly. By 1st October 1944, of 933 R.A.A.F. pilots at Brighton some 200 had been waiting for employment for more than 6 months and 8 men had been there more than 9 months. To meet this embarrassing situation pilots were freely attached to service units either for flying-control duties which at least would give them experience in airfield lay-out and discipline, or as assistants in unit headquarters, equipment, transport or gas and fire sections to attune them to conditions on an active station. As the demand for basic trainees diminished, more of the old elementary flying schools, which had latterly been conducting grading flights for potential recruits, were thrown open for refresher flying courses and some Australians took two courses. The pattern in the late summer and autumn of 1944 was therefore:—

Aircrew administration school	4 weeks	on attachment elsewhere
Elementary flying practice	4 „	
Naval course	1 „	at the personnel depot
Refresher ground training	3 „	
Flying control duties	4-8 „	on attachment elsewhere
Second elementary flying practice and if necessary	4 „	
General service employment	4-8 „	

This problem of overcrowded personnel depots was by no means only an Australian problem, nor did it become really acute until the events of June 1944 showed the true extent of reserves on hand in relation to probable needs. Overseas Headquarters had for a long time appreciated that dislocation might arise. Thus in December 1943 it was estimated that there were already at Brighton enough pilots to meet all R.A.A.F. unit requirements for two years for single-engined pilots and for nine months for men trained on multi-engined aircraft. At the same time the Australian liaison officer in Flying Training Command pointed out that there was an unprecedented surplus of Australian pilots who had completed advanced flying training but had to be held in reserve flights because operational training units could not accept them.[7] There was thus overstocking at both ends of the Flying Training Command pipe-line, and unless much heavier demands came from operational units the delays experienced at the P.D.R.C. would grow even worse.

In February 1944 the concern felt by all participants resulted in a national "quota" of trainees to be accepted into advanced flying units.

[7] On 21st December 1943 there were 252 RAAF pilots in twin-engined AFU's and another 314 in the reserve flights awaiting posting to OTU's. Similarly while only 11 day-fighter pilots were training at AFU's, 34 had completed the course and awaited vacancies at an OTU.

Canada which hoped to achieve a large expansion of its units was given 33 per cent of vacancies. Australia was to fill 12 per cent of A.F.U. capacity, although later the same month her share was altered to 50 pilots each week—slightly more favourable than the first allocation. Arrivals of pilots at No. 11 P.D.R.C. continued, however, to outstrip postings and 1,269 were still on hand at the end of June. This total was 50 per cent higher than that on which the calculation of two years' supply of single-engined plus nine months' supply of twin-engined reinforcements had earlier been made, and at the same time combat squadrons and the advanced and operational training units were already overstocked. Moreover physical expansion of the R.A.F. had almost ended and the increased number of men becoming available to undertake a second tour of operations caused a slackening of the reinforcement rate demanded by the commands. Thus, although after June 1944 the cessation of pilot drafts from Australia meant an immediate reduction in intakes, which by October had fallen to a mere trickle, R.A.A.F. reserves at Brighton melted away very slowly and 678 pilots were still at No. 11 P.D.R.C. at the end of the year of whom over 300 had been there more than 6 months.

While the superfluity of pilots was general, that of wireless operators was peculiar to the R.A.A.F. This surplus, and a corresponding shortage in other categories, reflected the difficulty which Australia experienced at long range in adjusting quickly her training schedules to altered requirements in Europe, and also owed something to delays in convoy arrangements by which extremely large drafts of wireless operators arrived in quick succession from October 1943 onwards. At the beginning of 1944 there was already nearly a year's stock of this category at Brighton and a further 1,593 arrived during the first half of that year.

Wireless operators far more than other aircrew lost their efficiency when they had to be kept idle for long periods, so that the problem of assimilating them as quickly as possible had a special urgency. In January 1944 it was proposed that many should be employed temporarily as ground operators, but this solution was unacceptable to the Director-General of Signals, who pointed out that they must first be trained in new organisation and procedures for at least three months, which would entail much waste of effort if they were then withdrawn for air duties. However the R.A.F. agreed to give Australians priority of vacancies at radio schools at the rate of 40 a week so that the men could become experienced with Marconi equipment, and others were posted to special preparatory flights at advanced flying units for the same purpose. By these means it was hoped to clear the original surplus by the end of April, but by that time new arrivals had made the problem as difficult as before. By 12th June it was necessary to make new arrangements by which 30 Australians went each week to No. 2 Radio School at Yatesbury and another 20 to observer advanced flying units.

Plans made early in 1944 to dissipate embarrassing surpluses of aircrew were put awry later that year when relative demand fell below expected levels. Some operational training and advanced flying units were closed

down and others suffered from seasonal restrictions. The R.C.A.F. recast its intention of building up a force of 58 squadrons to the more modest goal of one of 33 squadrons, but training units were already filled with Canadian aircrew suitable for the larger force. Henceforth the road out of Brighton was to appear very steep, and every opportunity had to be seized. Some "Nav-W's" were misemployed as straight navigators and others were accepted by Coastal Command as radar operators, but this was a case of robbing Peter to pay Paul as it barred one avenue of employment to wireless operators. Navigators "B" were also misemployed as air bombers, so that, although sometimes against their precise wishes, Australian navigators were fortunate in finding some outlet. Wireless operators could also be used as air gunners, and this policy was adopted at least insofar as it was necessary to provide matching crews for *Article XV* squadrons. Some pilots were also encouraged to accept duty as flight engineer-second pilot on heavy bombers. Pilots of other nationalities were also at this time retrained as glider pilots, but no Australians were included.

By November 1944 the Aircrew Allocation Committee was looking beyond the war in Europe (phase I) to the smaller but more ordered requirements of the war against Japan (phase II). They were very concerned that sufficient R.A.F. men would be trained ready to transfer quickly to the new theatre and wished to restrict the number of Dominion pupils entering advanced training to a level adequate to maintain only the *Article XV* squadrons. Some of these would probably be included in phase II operations but the other squadrons were desired to be as completely British as possible. This question was naturally bound up with Dominion views of the nature of their participation in phase II, and once again Australia gave a tardy answer. Canada early decided that she wished to "unscramble" all her personnel still serving on R.A.F. units at the end of phase I; New Zealand on the other hand wished her airmen to remain for a full overseas tour so that there was no restriction on their posting and they could be fed forward at full training rates. R.A.A.F. Headquarters in London favoured the latter course, but could make no firm promise in November 1944 and the question remained unresolved until the end of March 1945, when information was received from Australia that R.A.A.F. aircrew should be withdrawn from R.A.F. units. In the meantime Australian aircrew benefited from the equivocal position in that they received more preferential consideration for training vacancies than would otherwise have happened. This factor, and a revival in general training after January 1945, helped to absorb most of the men at Brighton.

The acuteness of the problem was shown on 30th November 1944 when Overseas Headquarters offered to repatriate 400 pilots and 400 wireless operator-air gunners but said that it would prefer to take the pilots after the advanced flying unit stage. At the same meeting of the Aircrew Allocation Committee it was agreed that intakes of Dominion aircrew to A.F.U's should be suspended until numbers already in reserve flights fell to a level appropriate to ensure an even flow to *Article XV*

units. The Australian offer of repatriation was deferred and a sub-committee was appointed to advise on the future flow of aircrew into advanced training units. On 20th December the situation of R.A.A.F. aircrew who had already begun training was represented as:

	Ideal stock in reserve flights	Actual stocks
Day-fighter pilots . . .	28	86
Night „ „ . . .	7	21
Twin-engined „ . . .	170	501
Nav's and Nav's B . . .	33	70
Air Bombers	32	43
W.Op's-Air	50	218

The ideal stocks were calculated as sufficient for 13 weeks' requirements for *Article XV* units, so that surplus men already in reserve flights were unlikely to begin O.T.U. training before mid-March 1945 and were thus already in excess of the known requirements of phase I, which, it was estimated, would end before they could complete the O.T.U. course. All R.A.A.F. pilots and wireless operator-air gunners still at Brighton were virtually redundant unless some extreme emergency should arise or an agreement be made for them to be freely available for R.A.F. squadrons earmarked for phase II. In the event many were accepted into advanced training units during 1945, and in one respect the pendulum swung the other way, for with the drying up of navigator, air bomber and air gunner stocks by April 1945, some concern was felt that *Article XV* squadrons intended for use against Japan might not be fully manned unless men were sent from Australia or obtained from among those who had already completed one tour of operations.

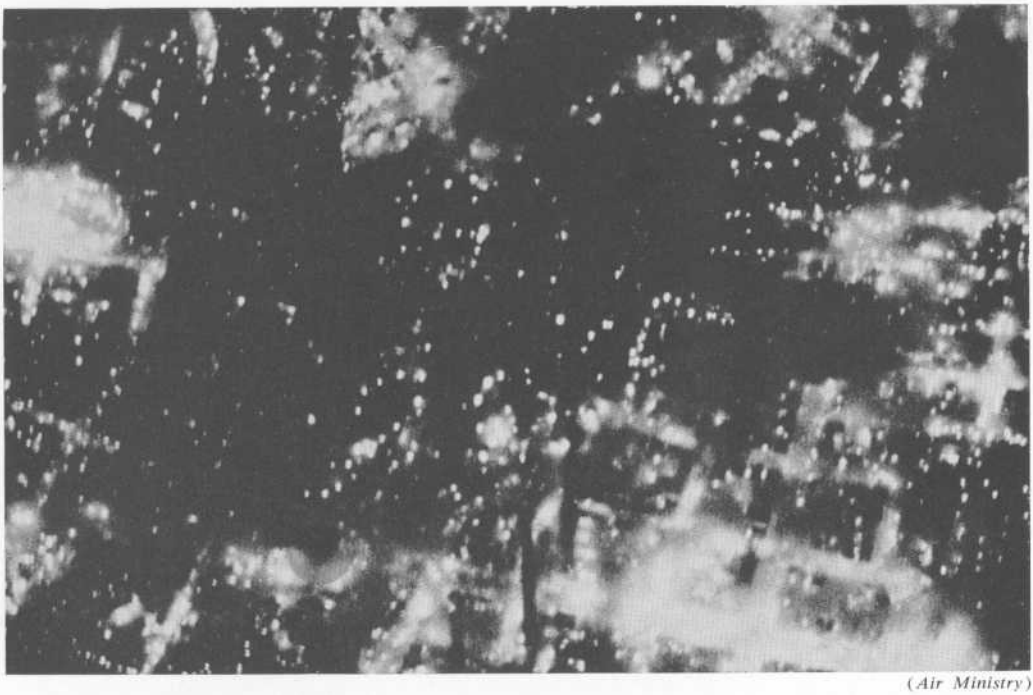
In these circumstances, the activities of No. 11 P.D.R.C. began to change after August 1944. There were no further large drafts of trainees to be received, kitted and documented, and to whom refresher training had to be given; only the postings section remained busy on its original tasks. On the other hand the function of returning men to Australia began to assume greater importance. There were by this time many Australians who had completed two operational tours and who were eligible under the provisions of the 1943 two-party agreement to be repatriated. Some preferred to remain in Europe because they thought quite correctly that in an era of aircrew surplus they were more likely to find congenial employment either operational or non-operational, where they were experienced, rather than in the South-West Pacific.[8] Aircrew who had completed one tour were also eligible for repatriation at the request of the Australian Government for further operational duty. In the period April to October 1944 the monthly requirements were assessed as 15 complete crews for light general-reconnaissance aircraft, 4 Catalina crews and 8 Liberator crews, plus 31 fighter pilots. An additional but non-recurring request was for 4 Beaufort crews in July so that the total of aircrew to be repatriated in the 6-month period was 1,258.

[8] Many too had married in the United Kingdom and wished to defer repatriation until the end of hostilities in Europe.



(*Air Ministry*)

The merchantman *Ursa* under attack by rocket-firing aircraft of Coastal Command in Stav Fiord, Norway, 19th September 1944.



(*Air Ministry*)

Brunswick's streets illuminated by fires as the result of a night attack by Bomber Command on 14th-15th October 1944 when 800 tons of bombs and thousands of incendiaries were dropped.



(*Air Ministry*)

Volkel airfield in Holland after a raid on 3rd September 1944 by Bomber Command. Lancasters of No. 460 Squadron had participated in an earlier attack on 15th August when over 900 craters were made in the central part of the landing ground.



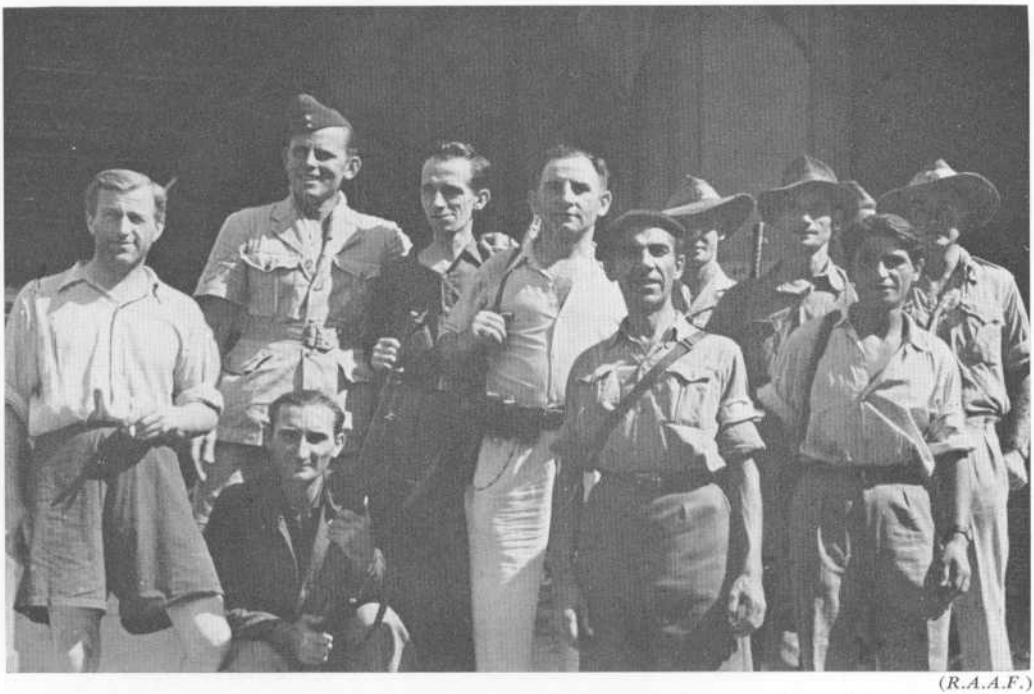
(*R.A.A.F.*)

Part of the sea wall around Walcheren Island breached by Bomber Command attacks in October 1944. The flooding was at Ritthern, a village due east of Flushing, where a number of strongpoints were isolated.



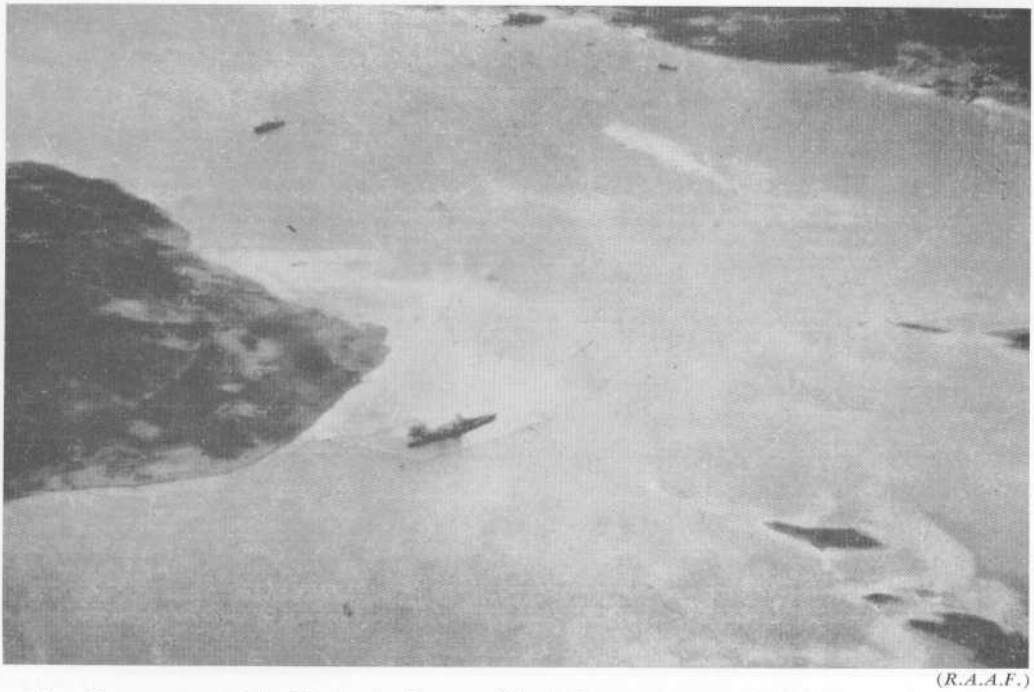
(*R.A.A.F.*)

Baltimores of No. 454 Squadron returning to their base at Falconara on 28th November 1944 after close-support attacks north of Rimini with the Eighth British Army in Italy.



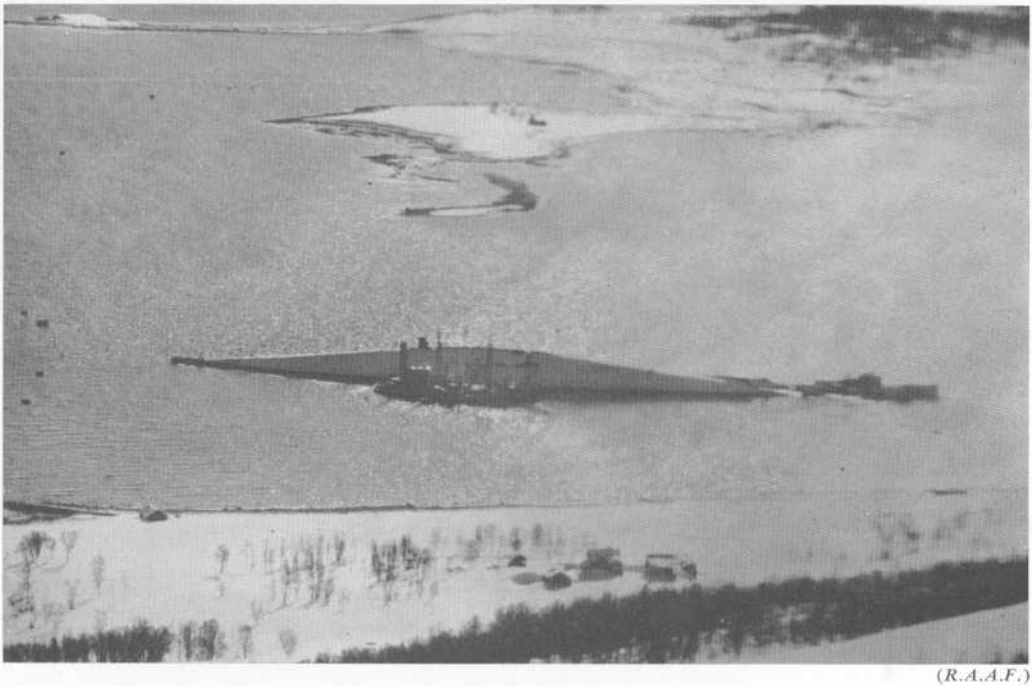
(*R.A.A.F.*)

Australians of No. 451 Squadron in southern France, on a visit to Toulon, with men of the Maquis who played a large part in the liberation of the city in August 1944. *Left to right*: Sgt F. A. Wigley, LAC R. N. Davis-Gregory and Cpl H. B. Bossley.



(*R.A.A.F.*)

The German battleship *Tirpitz* in Tromso Fiord, Norway, surrounded by an anti-torpedo boom before the attack by Lancasters of Nos. 9 and 617 Squadrons R.A.F. with 12,000-lb bombs on 12th November 1944.



(*R.A.A.F.*)

A reconnaissance photograph showing the capsized hull of the *Tirpitz* four months after the attack.

The numbers of these category "B" repatriates in the United Kingdom were always enough to meet requirements, but in this case also individuals evaded selection if possible on domestic grounds or because of disquieting rumours that men returning home went not to operations but as pupils to operational training units "to bring them up to Australian standards".[9] There was also a small but steady flow of men repatriated for medical or urgent compassionate reasons. Finally, in the latter half of 1944 the long-awaited ground staff repatriation scheme at last came into effect.

There was a far more positive desire among ground staff to return to Australia as quickly as possible, for in general they had been overseas far longer than most aircrew. They had been constantly hard at work with neither the self satisfaction of combat, nor the liberal leave, recreation and other benefits which were common for aircrew. Chances of promotion were poor because in the United Kingdom they were all restricted to a few R.A.A.F. units, whereas aircrew could be advanced on merit throughout almost the entire range of R.A.F. vacancies. Thus both for personal and professional reasons ground staff looked to repatriation as a means of redressing the circumstances by which in the difficult years of 1942-43 their interests had been virtually sacrificed to general war needs. Even so there were again some who had married in the United Kingdom and were willing to defer repatriation, but those who avidly wished to return far outstripped the proposed rate, which in July 1944 was fixed at 100 every two months from the United Kingdom and 100 each alternative month from the Middle East. The basic qualifying period was three years' service overseas, and when the scheme was due to begin there were (excluding officers) 1,486 ground staff men in the United Kingdom of whom 740 had already fulfilled this requirement. Theoretically therefore it would take 15 months to clear those initially qualified by which time another 700 would also be eligible. Nevertheless, despite its limita-

[9] There was a general feeling that the RAAF in Australia was antipathetic to men returning from service in Europe. At one period in 1942 acting ranks were taken away from men returning from overseas. Men transferring to the RAAF after holding short-service commissions in the RAF found that avenues of employment and promotion were far different from those expected. A more sentimental affront was a general order that men returning from overseas must not wear the badges and stripes which indicated the extent of that service.

Personal disappointment lay at the root of these and other causes, but, although magnified, it was a very live issue. Nor was the point of view of the RAAF authorities in Australia, struggling with the needs of the war in the South-West Pacific and of the training organisation to which the majority of permanent aircrew were confined whatever their personal inclinations, without some justification. Operational conditions in the South-West Pacific were different in some respects from those in Europe and some of the men returning, although excellent gladiators and combat leaders, were not always able administrators or even technically good pilots.

The position became acute after June 1944 because the cessation of overseas drafts of aircrew and the relatively low expansion and operational role of the RAAF in the Pacific made the competition for active duty almost a desperate scramble. Trainees and returning men alike were given very critical medical, theoretic and flying tests, which caused some feelings of injustice. There was a natural tendency to give preference to men who had served faithfully on the home front and had as yet no opportunity of distinguishing themselves in action. Much of this was obviously necessary in the circumstances but it was badly received by some of the men, brought back as they felt on false pretences, and they were not slow in passing on this view in letters to comrades still overseas.

Another factor which influenced men without pressing domestic ties in Australia to prolong their service in Europe, was a barrage of Press and private opinions which imputed that senior officers of the RAAF were at loggerheads and the service split asunder, while the value of operations actually carried out in the South-West Pacific was allegedly open to serious doubt.

tions, the scheme was well received because it did offer some relief. A system of priorities was fixed to choose the first draft:

(*a*) Those with the longest period overseas to be considered first.
(*b*) Of these, men with family responsibilities which were causing severe strain (although insufficient to gain them an ordinary compassionate posting) to be given preference.
(*c*) As between men in (*b*) married men to have preference over single men.
(*d*) If further subdivision necessary length of front-line service to be taken into account.

It was also pointed out to commanding officers that, where possible, they should nominate senior N.C.O's so that limited promotion would be possible for those still waiting, all compensating reinforcements from Australia to be of junior airmen.

CHAPTER 13

RESUMPTION OF THE STRATEGIC BOMBER OFFENSIVE

TWO months passed during the assault, lodgement and stalemate phases of the battle for Normandy without Bomber Command making any heavy attacks against major cities in Germany. Between 22nd-23rd May 1944 when Brunswick and Dortmund were bombed and 23rd-24th July R.A.F. air action over Germany was confined to the Ruhr oil targets and to nuisance raids on a wider front by relatively small groups of Mosquito bombers.[1] Notable as were the apparent achievements of Bomber Command both in support of the land battle and in counter-attacking enemy V-weapon installations, air planners became increasingly concerned at the respite thus afforded to German industrial cities. Disappointment with the progress of Allied armies against the stubborn enemy defence led to renewed claims that air bombardment of the German home front would materially shorten the war.

Accordingly air bombardment was resumed on 23rd-24th July (Kiel was raided) and before the end of September 30 main-force attacks were made against 18 targets. These raids were conducted when there was no priority tactical target and some were opportunist in nature. It was also necessary to accept the risks of operating on occasion in weather unsuitable for precision bombing and at other times in daylight. In its choice of targets Bomber Command made a rather liberal interpretation of the strategic objectives[2] assigned to it under the OVERLORD directive of 17th April, and in this period made 16 attacks against 10 German inland cities, 12 attacks against 7 North Sea and Baltic ports and 2 attacks against the giant Opel factory at Russelsheim, near Mainz.[3] General attrition of enemy industrial capacity was more frequent than specific attack against either the German Air Force or the transport system.

One or more of the R.A.A.F. heavy-bomber squadrons took some part in 23 of the raids against 14 of these targets. The first raid against Kiel on 23rd-24th July was the largest of the series and was planned with very great attention to the outwitting of the main force of enemy night fighters then disposed in Holland and Belgium. Ten Lancasters of No. 460 Squadron and nine from each of Nos. 463 and 467 flew at low altitude to join a stream of 629 bombers assembling some 30 miles north-north-west of Texel. This low-level approach gave some immunity from

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[1] At this period activity was at the rate of 800 sorties a month. Each Mosquito carried one 4,000-lb bomb. In addition to actual bombing results these nightly forays had results comparable with the V-weapons in engaging enemy defences and disrupting civilian and industrial routines.

[2] ". . . where tactical conditions allow targets will be selected so as to give the maximum assistance in the aims of reducing the strength of the G.A.F. and destroying and disrupting enemy rail communications."

[3] This factory produced large quantities of motor-transport and aircraft parts, but attack at this time was really dictated by its importance in enemy V-weapon production. The raids were described in Chapter 8.

enemy radar which was further confused by a flanking screen of Mandrel-equipped aircraft and by a force of Mosquitos heading for Berlin on a parallel course. Other Bomber Command strikes against Donges (oil storage tanks) and two flying-bomb sites were timed to draw fighters westward away from the force attacking Kiel which thus had to face only a few fighters based in Denmark. Once past the danger area the Lancasters climbed to normal operational height, most of the Australian crews reaching Kiel and bombing from altitudes between 17,000 and 21,000 feet. Despite moderately impressive anti-aircraft fire all the Australians were able to bomb unhurriedly with the help of a well-concentrated pattern of target indicators. They returned confident that the raid had gone well but unable to assess precise results because of heavy cloud. It was later known from air photographs that substantial damage from explosions and fires had been caused in the Deutsche Werke shipyards, the Kiel-Holtenau seaplane base, the Wik Harbour area and the marine artillery depot, in addition to widespread destruction of residential buildings in the town itself. This tactical success for the loss of only four aircraft from the whole force led to three more raids with smaller forces on 16th-17th August, 26th-27th August and 15th-16th September[4] with an increasing emphasis on incendiary rather than high-explosive bomb-loads.

Fifteen Halifaxes of No. 466 and the equivalent of about 20 R.A.A.F. crews scattered among other squadrons joined in the second raid, which was made by 348 aircraft. Cloud and scattered marking prevented this raid from achieving outstanding results, but once again the many reports of fires and explosions seen through cloud, and the light casualties—only five bombers—led crews to assess the attack as successful. German defences were much more active on 26th-27th August when 26 Lancasters took off in stormy weather in a force of 380 bombers. Fighters were met in the target area and during the return journey. Three crews of No. 460 had indeterminate combats with night fighters but all bombed and returned safely, although two Australian crews with other squadrons were among the 17 which were shot down and several others had to fly badly damaged aircraft through a severe electrical storm on the homeward journey. Over Kiel itself the skies were almost clear and, although this helped enemy fighters, gun crews and searchlight crews, it gave opportunities for the bomb aimers who gutted large sections of the eastern port area including the naval dockyards, arsenal and marine stores. Three weeks later 499 aircraft, mostly Halifaxes of Nos. 4 and 6 (R.C.A.F.) Groups, scored another success with 663 tons of high explosive and 788 tons of incendiaries.[5] Fifteen crews of No. 462 and twelve of No. 466 reported that fires took strong hold at the southern end of Kiel and the glow from them could be seen at distances up to 100 miles. One aircraft of No. 466 failed to return.

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[4] The American Eighth Air Force made a daylight attack on 30th August.

[5] During the four raids 1,780 aircraft attacked the town with nearly 4,800 tons of HE and 2,200 tons of incendiary bombs. The RAAF *Article XV* squadrons contributed 97 sorties and dropped 459 tons of bombs.

This series of four raids effectively removed Kiel from the priority target list for heavy bombers for the remainder of the year. Realisation that even the most heavily-hit cities could in time recover led on 28th-29th July to a medium-scale attack by No. 6 (R.C.A.F.) Group against Hamburg. Much new damage was caused but its extent could not be compared to that achieved during the furious and concentrated "Battle of Hamburg" a year earlier. Moreover the target was well protected by both flak and fighters and 23 aircraft were lost. This raid was to be the last in the third operational tour of Squadron Leader Slade[6] of No. 156 P.F.F. Squadron. His Lancaster was hit by flak before he made his run in to the target, and then, after he released his bombs, the aircraft went into a slow spiral dive, out of control. Slade ordered his crew to stand by ready to bale out, but succeeded in putting the Lancaster once more on an even keel. With the aid of his navigator and flight-engineer he manhandled the aircraft away from the target area and headed for home with only about 10 per cent aileron control. Slade had an anxious time while flying over the enemy coastal gun belt because he could not take evasive action without the danger of spinning out of control. He persevered, however, and by intelligent use of petrol only from the port tanks he established a better balance and less strenuous flying conditions. Once over the North Sea he headed for Woodbridge, and although his engines were undamaged he slowly lost height all the way. Any momentary loss of power or relaxation of his grim struggle with the controls would have sent the Lancaster crashing into the sea. When he reached Woodbridge the Lancaster was down to an altitude of 1,500 feet and Slade called on his reserve of physical strength and mental tenacity to make a successful emergency landing from which his crew emerged safely although the Lancaster was further damaged.

Australian squadrons were not engaged in an outstanding raid on 18th-19th August which showered 1,130 tons of bombs and incendiaries on Germany's second largest port, Bremen, for the loss of one aircraft, but both Nos. 463 and 467 went out in strength exactly a month later when the target was Bremerhaven. This was a most telling attack made in good weather and with enemy defences singularly inactive. Fifteen crews of No. 463 and 19 of No. 467 bombed at the height of the raid when heavy explosions were visible throughout the whole area of the town and Wing Commander Forbes and other pilots reported at debriefing that the glow of fires remained visible for 180 miles. Their confidence was amply justified by later photographs which showed that submarine and shipbuilding yards, warehouses, and the business and residential areas were all heavily damaged.

These raids together with a daylight attack by Canadian squadrons against Emden on 6th September exposed the vulnerability of Germany's North Sea ports. Only at Hamburg and Kiel (once out of four raids) had

[6] Sqn Ldr H. F. Slade, DSO, DFC, 412725; 156 Sqn RAF. Driver; of Darlinghurst, NSW; b. Penarth, Wales, 19 Jun 1913. Died 25 Aug 1962.

success been gained at other than trifling cost. During the second half of August Bomber Command also reached out to the Baltic in two raids against Stettin, the most important port, and two against Konigsberg, capital of east Prussia and then the major base for enemy resistance against a Russian Army advance. The first raid by 461 bombers against Stettin on 16th-17th August brought differing assessments from crews of the three R.A.A.F. Lancaster units which took part. Twenty-four crews of No. 460 reported an effective attack and praised both the primary marking and the master bomber; some stated that they actually saw bombs fall in the dock area and the centre of the town; others checked the location of fires on their H2S display radar and also claimed accurate bombing. The 18 crews of No. 463 were less optimistic as they arrived later, were hindered by cloud and fires and failed to secure any target photographs showing ground detail. Even more discouraging logs were filed by 15 crews of No. 467 who had difficulty in locating the target and considered that many of the fires were dummies laid by the Germans and that the attack was scattered over a large area. In fact substantial damage was achieved in both the port and residential areas, and under cover of the main-force attack 20 Lancasters dropped mines in the Stettin canal.

This was a daring and hazardous exploit but justified because at this time the Stettin canal carried the bulk of supply traffic feeding the armies on the northern part of the Eastern front. To ensure accuracy selected crews dropped both marking and illuminating flares before releasing their mines and they had to face withering fire from flak ships and shore batteries which lined the complete length of the canal. Squadron Leader Locke of No. 97 Squadron, one of five R.A.A.F. pilots in the small force, was ordered to place a floating flare at the northern entrance to the channel and then to drop his mines as far northwards as possible. Locke had no sooner completed his marking and mining run than his aircraft was badly damaged by fire from a flak ship. He spent 10 minutes evading the illumination of searchlights and flak batteries before requesting permission from the master bomber to fly his damaged aircraft back to base.

The mining of the Stettin canal and the bombing of the city temporarily immobilised the port but it was realised that the Germans would take energetic steps to reopen this vital supply centre. Accordingly on 29th-30th August No. 460 contributed 24 to a force of 403 Lancasters with a predominantly incendiary load sent to burn out as much of Stettin as possible. Despite the loss of 23 aircraft the raid was successful and additional large areas of the town and dock area were damaged. Meanwhile No. 5 Group, which had hit the eastern sector of Konigsberg and laid mines in the port on 26th-27th August, again struck at this target on 29th-30th. As at Stettin the same night the bombing was successful but enemy defences, in particular fighters, were active, and 5 out of 39 aircraft from Nos. 463 and 467 failed to return.[7]

[7] Three nights earlier 32 Waddington crews had been sent to Konigsberg and all returned safely.

Of German inland cities attacked at this time, Stuttgart was most heavily hit, three times within five nights during late July and once during September. Twelve Halifaxes of No. 466, 9 Lancasters of No. 463 and 8 of No. 467 were in the stream of 618 bombers from all groups which made the first attack on 24th-25th July and dropped 1,750 tons of bombs in and around the city. The weather was bad and Australian pilots were unable to report any precise results but only the glow of fires seen below cloud. No. 466 lost two and the whole force 21 bombers during this deep penetration into enemy territory, as the German Air Force, once it recovered from its initial surprise, was able to mass fighters on both the outward and return routes. Stuttgart was the pre-eminent, industrial city in south Germany so that, as an "area" target, as a transport centre, and because of its ball-bearing, machine-tool and engine factories, which fed air force needs, it was given high priority as a target. Accordingly a force of 550, containing only a few individual R.A.A.F. crews, struck again the next night when, despite even more adverse weather, heavy destruction was caused in the centre and western suburbs of the town for the loss of 12 aircraft.

Again on 28th-29th July the three R.A.A.F. Lancaster units provided 51 aircraft in a force of 493 sent to Stuttgart, but on this night the attackers were unfortunate in several respects. Diversionary tactics failed and a strong force of 200 night fighters harassed the bomber stream in bright moonlight all the way from Orleans to Stuttgart, but the target itself was blanketed in cloud. Before reaching Stuttgart the bomber stream had become rather dispersed in both horizontal and vertical planes and many crews could not identify either ground or parachute target indicators and were forced to aim at the often misleading glow of fires dimly seen through cloud. Thirty-nine (or nearly 8 per cent) of the Lancasters were shot down, but in spirited battles many night fighters were also claimed as destroyed or damaged. No. 460 claimed one FW-190 probably destroyed and one Me-109 damaged; Flight Sergeant Cox[8] a rear gunner of No. 463 shot down an Me-109 at very close range, and another crew from his squadron claimed an Me-210 as probably destroyed as it was seen to roll over on its back and disappear through cloud apparently out of control. Returning crews of No. 467 Squadron, although they commented on the large number of fighter flares seen along the inward route reported no combats, but the squadron lost two of its experienced crews, captained by Flying Officers Johns and Fotheringham,[9] each of whom had completed 20 or more bombing raids.

After the damaging but costly July raids Stuttgart was left alone by Bomber Command for six weeks until 12th-13th September when it was hit by No. 5 Group. The two Waddington squadrons dispatched 34 Lancasters (out of 217 bombers) and dropped 157 tons of bombs (out of 880) in this attack, more than 60 per cent of which were incendiary

[8] F-O J. E. Cox, DFC, 432496; 463 Sqn. Student; of Kensington, NSW; b. Dungog, NSW, 22 Aug 1924.

[9] F-O I. Fotheringham, 418378; 467 Sqn. Clerk; of Hampton, Vic; b. Armadale, Vic, 2 Sep 1920. Killed in action 29 Jul 1944.

bombs. Favoured by better weather than previously and with less opposition from fighters,[1] both pathfinders and the main force arrived promptly and dropped their loads so quickly and accurately that raging fires soon swamped enemy A.R.P. capabilities, more than 25 city blocks were completely burnt out and fresh damage was caused throughout the industrial and residential suburbs. With half the city uninhabitable this target, like Kiel, was removed from the priority attack list.

Bomber Command claimed only modest success at heavy cost on 12th-13th August when 379 Lancasters and Halifaxes struck at Brunswick where important elements of the enemy's ordnance industry were located. Cloud was so heavy that no attempt was made to mark the target with flares. Crews of No. 460 and No. 466 bombed on timed runs from their last navigational "fix" or with the help of H2S radar and the attack was consequently spread over a wide area. Some compensation for an otherwise disappointing raid came when by fine teamwork a crew of No. 460 destroyed an Me-110 and crews of No. 466 destroyed two twin-engined and one single-engined night fighter in desperate encounters near the target.

Another failure, this time at Darmstadt, came on 25th-26th August, not because of weather but because the master bomber's aircraft suffered technical difficulties and both his deputies failed to arrive at the target. The initial flares were dropped somewhat west of the aiming point and, in the absence of instructions from the master bomber, the Mosquito "backers-up" were unable to lay secondary flares. The raid was prevented from becoming an utter failure by the presence of mind of Flight Lieutenant Parker[2] of No. 97 Squadron, who realised what had happened, assumed control, and attempted to commence the marking sequence again. This was only partially successful, as by this time the bomber stream was milling around and enemy defences including decoys were in action. Finally Parker, when no more primary flares were left, ordered crews to approach and bomb visually or with the help of navigation aids. Some aircraft of Nos. 463 and 467 in this force remained circling for 20 minutes before bombing; some came down to as low as 8,000 feet in order to identify worthwhile aiming points; others flew off to drop their bombs on Russelsheim which was under attack from another force.

This debacle was galling to No. 5 Group and, when Darmstadt was again nominated as the target for 11th-12th September, crews went out with added determination. The load on this occasion was predominantly an incendiary one and the whole centre of the city was soon set ablaze; 12 hours after the raid ended nearly 50 fires were still burning furiously in Darmstadt. Crews of No. 463 who bombed from an altitude of 14,000 feet returned jubilantly with excellent photographs showing huge fires around their given aiming points, and also reported several very heavy explosions. No. 467 Squadron was equally convinced that a devastating blow had been struck. Some particular pride was felt in the rugged heroism

[1] Only 4 bombers were lost including 2 from No. 467.

[2] Sqn Ldr N. N. Parker, DFC, 413240. 75 and 97 Sqns RAF. Railway porter; of Riverstone, NSW; b. Goulburn, NSW, 8 Sep 1916.

of Flight Sergeant Morland,[3] a mid-upper turret gunner whose aircraft was attacked five times by a Ju-88 soon after leaving the target. During the second attack a cannon shell hit the starboard wing and Morland's turret, wounding him and disabling one gun. The rear-turret guns had already jammed so that for the three subsequent fighter attacks, all from the rear, the pain-stricken Morland and his one serviceable gun were left to beat off the determined enemy. He performed this task so well that the Ju-88 finally disengaged with flame and smoke pouring from one engine; it was claimed as probably destroyed.

The smouldering ruins of Darmstadt were seen and reported on 12th-13th September by crews of No. 460 on their way to Frankfurt, the commercial and industrial centre of the Rhineland. As part of the endless search for complementary aids to bombing accuracy an operational trial was made on this raid of "Loran" which had a potential range of 1,200 miles as a bombing aid.

Group Captain Edwards and several other crews of No. 460 were sent out in the van and ordered to bomb before the pathfinders arrived. Edwards dropped his bombs by navigational technique and then checked them against the subsequent markers and considered the experiment a success. Despite the formidable searchlight and gun belt covering Darmstadt, Frankfurt and Mainz, all except one of the 28 crews of No. 460 were able in good visibility to identify the marshalling yards and other selected aiming points in Frankfurt. Reconnaissance photographs later showed that the western suburbs had been severely hit and many factories including the Aeller Werke (a priority-one target) and Deutsche Gold und Silber Schiedeaustalt (priority-two) had been damaged in this raid.

The remaining Bomber Command targets in Germany in September 1944 were chosen with due regard to the official Air Ministry policy (backed enthusiastically by Tedder) of depressing the west German transport system in support of the planned break-through by Montgomery into Germany proper; but in practice Bomber Command also had an eye on the value as "area targets" of the towns chosen for attack. No. 5 Group bombed the twin towns of Munchen Gladbach and Rheydt on 9th-10th September and again on 19th-20th September. The Waddington squadrons joined only in the second raid when, despite some confusion concerning the three precise aiming points, a very satisfactory level of general damage resulted in the industrial and residential sections although the pure "transportation" facilities escaped vital damage. Greater accuracy against railways had in fact been achieved by relatively small daylight raids against Munster (124 bombers) on 12th September and Osnabruck (118 bombers) on 13th September. Only five R.A.A.F. Halifaxes led by Wing Commander Shannon of No. 462 went to Munster[4] but this fire raid was outstandingly successful. Both the main railway station and the goods station were heavily damaged, the repair shops gutted, the gas works was hit and many warehouses, commercial premises and public buildings

[3] W-O D. J. Morland, DFM, 430665; 467 Sqn. Public servant; of Edithvale, Vic; b. Mordialloc, Vic, 3 Feb 1915.

[4] Nos. 462 and 466 were attacking Scholven-Buer refinery this day.

destroyed. The Osnabruck raid was not supported by any of the R.A.A.F. squadrons; it caused heavy damage in the trunk marshalling yards and in the older part of the town.

The heaviest single raid during September was by 549 bombers against Neuss on 23rd-24th September when 2,660 tons of bombs fell on the railway and port areas of this Rhineland city. In marked contrast to other raids that month practically no incendiary bombs were dropped and, with the target indicators being quickly swallowed up in cloud, air-crews of Nos. 460, 462 and 466 complained that they had no reliable aiming point. Most Australians bombed on estimated position although four crews of No. 460 attacked Dusseldorf which was more recognisable on their H2S screen. Much of the bombing was in fact wasted although the dock area of Neuss was hit fairly heavily. Weather limitations also threatened to spoil a No. 5 Group attack on Karlsruhe on 26th-27th September but, as this time the bomb-load was almost entirely incendiary,[5] once the attack started there were sufficient ground fires to give a reasonable aiming point for crews arriving after the target indicators were extinguished. This raid caused widespread devastation in the centre of Karlsruhe; administrative and commercial buildings, munition factories and military barracks all suffered but the important railway repair shops, already attacked early in the month by the U.S.A.A.F., received little extra damage. Thirty-one crews of Nos. 463 and 467 commented on the difficulty of identifying the target markers at Karlsruhe but were generally satisfied with the raid.

Similar confidence was shown the very next night when again 31 R.A.A.F. Lancasters struck at Kaiserlautern. The city was covered with two sheets of cloud but crews went down to 5,000 feet or lower, from which altitude streets could be clearly seen in the light of fires which quickly sprang up around the two aiming points—the civic centre and the railway repair shops. An extremely good aiming-point photograph which showed perfect ground detail was obtained by Flight Lieutenant Boyle[6] who had bombed on two southerly red spot fires from an altitude of 5,000 feet. This was even more markedly a fire raid than at Karlsruhe, for only 75 tons of the total load of 810 tons were high-explosive bombs. The optimism of crew reports was fully justified, as over half the fully-built-up area of Kaiserlautern was wrecked; industrial plants including the important textile works of Kammgarnspinnerei were heavily damaged as well as the railway targets.

Despite some relative failures the renewed assault on German cities had already achieved significant results by the end of September 1944. The reversion of the strategic air forces to the control of the Combined Chiefs of Staff on 15th September permitted Bomber Command to plan area raids on a vastly increased scale despite the onset of winter. The philosophy of area bombing encouraged operations in weather which would

[5] At Neuss 2,658 tons of high explosive and only 3 tons of incendiary bombs were dropped. At Karlsruhe 118 tons of high explosive and 833 tons of incendiaries were used.

[6] Sqn Ldr A. B. Boyle, DFC, AFC, 404713. 51 and 35 Sqns RAF, 460 and 467 Sqns, 511 Sqn RAF. Machine man (mining); of Westwood, Qld; b. Springsure, Qld, 10 Aug 1914.

have inhibited attack on spot targets. At the same time the new navigation aids such as G-H, a superfluity of crews from the tremendous training machine backed by such reserves of basic aircrew that the Empire Air Training Scheme was being hastily tapered off in all countries, the tactical advantage of electronic radio counter-measures and shorter flights over enemy-held territory, together with a confident ability to operate if necessary by day and night, all reacted in favour of the bomber against enemy defences progressively cramped geographically and qualitatively weakened. In these circumstances R.A.A.F. squadron effort during October and November 1944 reflected the general pattern of Bomber Command and appeared phenomenal in comparison with that achieved during previous winters. In October 1943 No. 460 Squadron had operated only on nine nights because of fog and other weather limitations; in November only six raids were possible, bringing the squadron's total sorties for two months to 286. The squadron's tally for the same two months of 1944 was 551 sorties in 28 separate operations, which can also be compared significantly with its effort of 631 sorties during July and August 1944 when it had all the advantages of summer weather and short trips to French targets.

Slightly more than half the weight of Bomber Command's attack fell at this time on German industrial cities, while oil targets,[7] transport centres, and targets in relation to Eisenhower's plan to open the Scheldt estuary all absorbed approximately equal parts of the remaining effort. Harris remained convinced that only sustained area attacks could defeat the reorganisation and rebuilding of German industrial resources energetically pursued by Speer during what had been virtually six months' respite from heavy bombing. This conviction was strengthened by the apparently ineffective attacks made at this time by the U.S.A.A.F. on enemy ordnance and vehicle depots or on aircraft factories and air force facilities. Heavy attacks on the German transport system, enthusiastically advocated by Tedder, were difficult to prosecute in bad weather, and as Germany's rail facilities were greatly in excess of purely military needs there seemed little hope of quickly creating the kind of "traffic desert" achieved in France as a preparation for OVERLORD. Singlemindedness and (until the emergency caused by the enemy Ardennes offensive) the absence of any obvious superior target system permitted Harris within two months and a half to rain nearly 86,000 tons of bombs on industrial cities throughout Germany. This campaign involved 20,465 sorties for the very satisfactory loss rate of only 1 per cent. The R.A.A.F. squadrons took part in 34 attacks against 23 different targets and dispatched 1,233 aircraft which dropped 5,450 tons of bombs.[8]

As in previous years the Rhineland and Ruhr cities were given special priority, and in fact two-thirds of this early winter campaign were devoted to 29 raids against 15 cities in this area. Appropriately the first target

[7] See Chapter 9.

[8] RAAF squadron effort in the entire campaign was thus roughly 6 per cent although on individual raids it was much higher. By including the Australian personnel on RAF units, RAAF aircrew contribution would rise to nearly 10 per cent.

on 6th-7th October was Dortmund, the largest city in the Ruhr. No R.A.A.F. squadron operated on this occasion but No. 460 joined in a later daylight attack on 29th November. Both attacks laid waste large areas of the city and caused heavy damage to steelworks, smaller engineering factories and railway facilities. Bochum was raided on 9th-10th October and again on 4th-5th November with equally satisfactory results.

RUHR AND RHINELAND

	Target	Total Force		RAAF Force			Tons of Bombs	Total air-craft lost	RAAF air-craft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944									
Oct 6-7	Dortmund	523	483	—	—	—	1,669	5	—
Oct 9-10	Bochum	435	404	462	9	7	1,453	6	2
				466	12	12			—
Oct 14	Duisburg	1,063	1,007	460	26	26	4,782	15	—
				462	14	14			—
				466	15	14			—
				463	1	(Film Unit Aircraft)			—
Oct 14-15	Duisburg	1,065	998	460	25	25	4,547	6	—
				462	13	12			1
				466	14	12			—
Oct 23-24	Essen	1,055	955	460	26	24	4,538	8	—
				462	16	12			1
				466	16	15			—
Oct 25	Essen	771	740	460	24	23	3,684	4	—
				462	16	15			—
				466	18	17			—
Oct 28	Cologne	733	697	460	26	26	2,964	5	—
Oct 30-31	Cologne	905	870	460	26	26	4,040	—	—
				462	13	13			—
				466	15	15			—
Oct 31-Nov 1	Cologne	508	491	460	23	22	2,402	1	1
				462	3	3			—
				466	10	10			—
Nov 2-3	Dusseldorf	992	946	460	23	23	4,484	16	—
				462	15	15			2
				463	15	15			1
				466	14	14			—
				467	15	15			1

RUHR AND RHINELAND—*Continued*

	Target	Total Force		RAAF Force			Tons of Bombs	Total air-craft lost	RAAF air-craft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
Nov 4-5	Bochum	749	706	460	15	14	3,332	25	—
				462	13	13			—
				466	16	15			2
Nov 6	Gelsenkirchen	738	693	460	14	13	3,288	5	—
				462	14	14			—
				466	14	14			—
Nov 28-29	Essen	316	308	462	17	17	1,199	—	—
				466	17	16			—
Nov 29	Dortmund	311	291	460	23	23	1,594	6	1
Nov 30-Dec 1	Duisburg	576	554	462	16	16	2,111	3	—
				466	16	16			—
Dec 12-13	Essen	550	529	460	18	18	2,377	6	1
				462	11	11			—
				466	11	9			—
Dec 17-18	Duisburg	523	486	462	16	14	1,808	3	—
				466	15	14			—

The initial raids against Dortmund and Bochum were followed in mid-October by a terrible onslaught on Duisburg when two separate 1,000-bomber raids were launched against that city within 24 hours. In each attack a greater weight of bombs was dropped than in any previous raid against a German industrial city, the combined bomb-load aggregating over 9,000 tons, not much short of the total enemy bomb-load dropped against all British targets during the worst month (September 1940) of the *Luftwaffe* blitz. This agony for Duisburg began in the late forenoon of 14th October when, despite layers of drifting cloud over the city, aircraft of Nos. 460, 462 and 466 had no real difficulty in bombing heavily built-up areas and in starting many fires in the dock area of the river port. The same three squadrons (and many of the same crews) returned during the second wave of the night attack and were favoured not only by clear skies but also by raging ground fires which assisted their aim. When the Australians left, the whole city appeared to be ablaze. Enemy gun and fighter defences, which had destroyed 15 of the daylight raiders, became progressively less effective during the night attack.

Nevertheless No. 462 lost one Halifax which crashed on its return flight because of flak damage, and would have lost another but for a magnificent

display of courage and determination by Flight Sergeant Cockerill.[9] His aircraft was coned by searchlights as he approached the target and almost immediately afterwards Cockerill was severely wounded in his left eye by flak. He lost consciousness and the Halifax began to dive steeply but he recovered in time to level out the aircraft and complete his bombing run. Although in great pain and weak from loss of blood he refused morphia. Throughout a hazardous return flight, which included a fire in one engine and sudden illumination by enemy fighter flares, he stuck grimly at the controls although he could not see his instruments, whose readings had to be given to him by another crew member. He collapsed just after making a successful emergency landing at Manston in Kent. Another Australian, Flying Officer Stephens[1] of No. 514 Squadron, had two inconclusive battles with enemy jet fighters; but most crews reported a quiet if memorable trip.[2]

These raids on Duisburg created widespread new damage in civilian and industrial suburbs alike but it was also apparent that the law of diminishing returns applied to the bombing of cities that had already been heavily attacked, as areas already devastated inevitably absorbed a fair proportion of the weight of attack. This led Bomber Command to increase the proportion of high explosive to incendiary bombs in attacks of this kind, because fires would not spread rapidly across areas covered in ruins or cleared of gutted buildings. Although badly hit Duisburg was by no means knocked out and Nos. 462 and 466 returned in a force of 500 bombers on 30th November-1st December and again in similar strength on 17th-18th December.

After Duisburg came Essen, the home of Krupps, which had a symbolic significance to aircrew as the prime heavy industrial target. The first raid on 23rd-24th October was again in great strength, Nos. 460, 462 and 466 providing 58 bombers in a force of 1,055. Essen was covered in heavy cloud and, although "Wanganui"[3] sky flares were well laid and maintained by the pathfinders, approximately 10 per cent of crews failed to attack. Those who bombed could give no precise assessment of their accuracy although they reported a strong glow from fires which increased as the attack progressed. Only eight bombers were lost against this notoriously difficult target but Flying Officer Hagstrom of No. 466 and Flying Officer Bennett[4] of No. 78 did well to coax their badly-damaged Halifaxes back to base. Two Australians were fortunate to escape death.

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[9] F-O A. J. Cockerill, DSO, 424372. 578 Sqn RAF, 462 Sqn. Clerk; of Casino, NSW; b. Casino, 27 Aug 1923.

[1] F-Lt F. Stephens, DFC, 425772; 514 Sqn RAF. Labourer; of Millaa Millaa, Qld; b. Townsville, Qld, 15 Oct 1918.

[2] The diary of a wireless operator with No. 550 Squadron who flew on both raids records that the daylight raid was a "real shaky do" but that "after leaving the target [on the night raid] it looked like a huge bonfire. Target indicators, markers and photo flares made the whole affair like Henley but with thousands more lights."

[3] Method of skymarking a target by coloured markers dropped blindly on H2S.

[4] F-Lt J. B. Bennett, DFC, 418911; 78 Sqn RAF. Shipping clerk; of Glen Iris, Vic; b. Richmond, Vic, 14 Apr 1923.

Flight Sergeant Cannon,[5] a mid-upper gunner of No. 460, was knocked unconscious when his Lancaster was hit by flak during the run up to Essen, and when the aircraft crashed on return to England he was thrown clear and although seriously injured was the sole survivor. Similarly Flight Sergeant Grace,[6] a bomb aimer of No. 462, lost consciousness when his Halifax collided with a Lancaster near Aachen. He recovered as he fell through space and managed to pull his rip-cord; the remainder of his crew perished.

A follow-up raid against Essen was quickly mounted in daylight by 771 bombers on 25th October, and again Nos. 460, 462 and 466 operated. Cloud was less thick on this occasion and, although skymarking techniques were again used, some crews checked their position during brief glimpses of ground features through patches in the cloud and were confident that their bombs fell on built-up areas. Photographs obtained after these two attacks showed that many buildings at Krupps already once repaired were again in ruins and business and residential areas had again suffered badly. As with Duisburg, however, two more "topping-up" raids were made before the end of the year—on 28th-29th November and on 12th-13th December; each of these achieved significant new damage. The Driffield squadrons joined in both these attacks without undue incident and without loss, but No. 460 which operated only on the latter raid suffered a heavy blow when Squadron Leader Clark,[7] a fine flight commander, was shot down.

Bomber Command continued its hammer blows with three attacks against Cologne within four days from 28th October. No. 460 flew in the opening daylight raid and was joined in each of the night raids by Nos. 462 and 466. Cologne had suffered only one major raid in 15 months but this new series rained 9,406 tons of bombs throughout the city and caused widespread destruction and temporary dislocation of power and transport facilities.

Dusseldorf was the next target, and on 2nd-3rd November 992 Lancasters and Halifaxes dropped 4,484 tons of bombs from a cloudless sky on this administrative centre of the steel industry which had practically recovered from the 1943 raids. All five R.A.A.F. squadrons joined in this attack and the 82 crews were unanimous in their reports of accurate ground marking, good concentration of bombing and the incidence of extensive fires and major explosions while they were over the target. They also met much more spirited opposition, especially from fighters, than on recent raids. Aircraft piloted by Flying Officer Maxton[8] and Flying Officer Gray[9] of No. 460 each sustained several attacks while Flying Officer

[5] F-Lt J. G. Cannon, 431006. 626 Sqn RAF, 460 Sqn. Junior reporter; of Melbourne; b. Melbourne, 6 Apr 1925.

[6] F-O J. M. Grace, 419701. 462 Sqn, 7 Sqn RAF. Clerk; of Ascot Vale, Vic; b. Moonee Ponds, Vic, 14 Dec 1922.

[7] Sqn Ldr J. Clark, DFC, AFC, 402439. 458 Sqn, 148 Sqn RAF, 460 Sqn. Clerk; of Menangle, NSW; b. Waverley, NSW, 28 Aug 1915. Killed in action 12 Dec 1944.

[8] F-O W. C. M. Maxton, 415675. 460 Sqn, 238 Sqn RAF. Farmer; of Kalgan River, WA; b. Albany, WA, 4 Nov 1920.

[9] F-O M. C. N. Gray, 428772; 460 Sqn. Linotype operator; of Mosman, NSW; b. Wollongong, NSW, 20 Jun 1917. Killed in action 29 Nov 1944.

Waxman[1] and Warrant Officer Willington[2] of No. 466 had inconclusive combats with enemy jet aircraft. Four R.A.A.F. bombers failed to return but almost all the crews survived. Some became prisoners of war but one crew baled out near the American front line and were quickly rescued. Pilot Officer Jubb[3] made a hazardous journey on foot (sometimes posing as an idiot) from near Dusseldorf to American positions close to Aachen; and Warrant Officer Scott,[4] although arrested and detained in a house 20 miles south of Cologne, escaped and, after five days of hunger and exhaustion, found refuge with a civilian family near Duren and remained in hiding until rescued by American troops on 26th November.

Nos. 460, 462 and 466 were out again in daylight on 6th November to strike at the sprawling industrial and mining centre of Gelsenkirchen. A very strong fighter escort[5] deterred the German Air Force but flak was heavy and many aircraft were holed. As happened too often at this target natural and simulated ground haze was made worse by the smoke of early bombing and the attack was rather scattered, although some built-up areas were heavily damaged. The two Driffield squadrons attacked Munster in daylight on 16th November and Hagen during the night of 2nd-3rd December, each time without loss and with satisfactory though not outstanding results. In other raids against Hamm, Leverkusen, Neuss, Oberhausen, Solingen and Witten, which further damaged the steel, chemical and transport facilities of the Ruhr, only a relatively small number of individual Australians were involved.[6]

Harris was by no means content to confine his attacks to the Ruhr and Rhineland and accordingly 11 targets in south and south-west Germany were selected for special attention. R.A.A.F. squadrons operated on 10 occasions and attacked 9 targets. This series of raids was performed by Lancasters because of their superior range, ceiling and bomb capacity which eased the difficulty of achieving a well-marshalled force over the target. Thus Nos. 463 and 467 which had each been used on only one of the Ruhr raids flew in four of this series while the indomitable No. 460 flew in six.[7] Saarbrucken, important for its industries as well as its rail facilities, was heavily hit on 5th-6th October by a force including 30 Lancasters of No. 460. No. 460 went to Stuttgart on 19th-20th October and, although crews were cautious in their reports because the target had been obscured by cloud, later evidence showed that electrical, chemical and aircraft factories had been badly damaged. The same night a smaller

[1] F-O J. H. Waxman, DFC, 418994; 466 Sqn. Indenter; of Melbourne; b. Brunswick, Vic, 7 Sep 1923.

[2] F-O A. F. Willington, DFC, 417142; 466 Sqn. Assistant filterman (mining); of Broken Hill, NSW; b. Broken Hill, 23 Jul 1922.

[3] F-O R. V. Jubb, DFC, 426609. 76 Sqn RAF, 462 Sqn. Bank clerk; of Yeppoon, Qld; b. Brisbane, 27 Aug 1922.

[4] W-O R. W. Scott, 418184. 102 Sqn RAF, 462 Sqn. Salesman; of Caulfield, Vic; b. Newport, Vic, 7 Oct 1918.

[5] Scrutiny of nine RAF squadron diaries shows that 28 RAAF pilots took part in this fighter screen. This is roughly equivalent to two squadrons.

[6] In the first raid on Neuss 24 RAAF pilots were engaged in a force of 100 aircraft; in the second raid only one in 290 aircraft; but 26 in the third raid.

[7] No. 460 had an establishment of aircraft and crews much larger than that of a normal two-flight squadron and could sustain a remarkable level of effort.

force from No. 5 Group (including Nos. 463 and 467) struck at Nuremberg and added to the confusion already created by U.S.A.A.F. daylight raids. Five weeks later on 26th-27th November the Waddington squadrons battled through electrical storms and severe icing conditions on the long journey to Munich which like Nuremberg had administrative and political as well as industrial importance as a target. Despite these handicaps a well-timed raid developed although, as the average bomb-load was only three

SOUTH AND SOUTH-WESTERN GERMANY

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dispatched	Attacking	Sqn No.	Disp	Atkg			
1944									
Oct 5-6	Saarbrucken	551	475	460	30	30	2,073	3	—
Oct 19-20	Stuttgart	583	564	460	28	28	2,446	6	2
Oct 19-20	Nuremberg	270	258	463	20	20	675	2	—
				467	20	19			—
Nov 26-27	Munich	278	258	463	18	14	781	1	—
				467	18	16			1
Nov 27-28	Freiburg	381	375	460	16	16	1,696	1	—
Dec 4-5	Heilbronn	292	284	463	21	21	1,267	12	1
				467	20	20			1
Dec 4-5	Karlsruhe	535	514	460	22	22	2,309	1	—
Dec 15-16	Ludwigshaven	334	319	460	13	13	1,554	1	—
Dec 17-18	Ulm	330	316	460	19	19	1,294	2	—
Dec 17-18	Munich	288	270	463	19	18	967	4	1
				467	22	21			1

tons instead of the normal five, there was insufficient weight of attack to cripple the city. By comparison No. 460 had greater success the next night when a very concentrated attack was made on Freiburg and the centre of the town was devastated.

Two forces were dispatched on 4th-5th December against Karlsruhe and Heilbronn and both achieved moderate success, but, whereas No. 460 had a quiet night over Karlsruhe, Nos. 463 and 467 had trouble both with icing and with enemy fighters which swarmed to the bomber stream after some loads of incendiaries had been dropped by accident or in emergency

on the outward journey. Twelve bombers were shot down including one from each R.A.A.F. squadron while Flying Officer Huxtable,[8] Flight Lieutenant Kynoch, Flying Officer Shanahan[9] and Flight Lieutenant Redwood[1] all had to fight off enemy attacks. No. 460 continued its record of bombing successes without loss (except at Stuttgart) with a raid against the I.G. Farben chemical factories at Ludwigshaven on 15th-16th December and against Ulm two nights later. Ulm was a "soft target" which had never previously been attacked and was poorly protected but its position on the upper Danube between Augsburg and Stuttgart made it a natural communications centre and many industries and military installations had become located there. The raid had significance in demonstrating that, however energetically the enemy might seek to disperse industry from the traditional centres already heavily attacked, Bomber Command had the power and determination to pound city after city into rubble until the whole war machine broke down.

While No. 460 was over Ulm on 17th-18th December, No. 5 Group made its second attack on Munich in clear weather with good visibility. Crews from Waddington reported a good attack followed by large fires and the raid caused extensive new damage especially near the main railway station and goods yards. Enemy opposition was not unduly heavy, but two Australians showed fine airmanship arising from the natural hazards of the bomber stream. Flying Officer Evans[2] of No. 467 found on his outward journey that his Lancaster had a faulty engine and an unserviceable rear turret but he carried on with his mission. While on his bombing run at the target his aircraft collided with another Lancaster and part of the port wing tip was torn off. Evans' Lancaster fell into a starboard spin and turned a full orbit before he regained control at an altitude of 7,000 feet. Evans turned for home, flying at reduced speed and steadily losing height, but before long an engine burst into flames and the fire could not be fully extinguished. When over France the Lancaster became unmanageable and the crew was ordered to bale out. When Evans tried to leave the aircraft his boot became caught and he could release himself only by pulling the rip-cord of his parachute, and as a result three panels of the parachute were torn away. By this time the Lancaster was at 1,500 feet and Evans injured his leg when he landed heavily. The rest of the crew were safe but the aircraft almost hit them as it crashed 500 yards from the village of Chalons-sur-Marne. Meanwhile Flying Officer Fairbairn[3] of No. 50 Squadron, the pilot of the other Lancaster, had carried on to bomb Munich. One engine was severely damaged and could not be feathered and there was severe vibration throughout the aircraft

[8] F-Lt D. C. Huxtable, DFC, 421733; 463 Sqn. Clerk; of Double Bay, NSW; b. Wahroonga, NSW, 20 Apr 1923.

[9] F-Lt P. K. Shanahan, 425902; 467 Sqn. Junior clerk; of Brisbane; b. Rockhampton, Qld, 20 Mar 1924.

[1] F-Lt H. G. Redwood, DFC, 428804; 467 Sqn. Clerk; of Newcastle, NSW; b. Newcastle, 14 Sep 1923.

[2] F-Lt T. E. Evans, DFC, 429220; 467 Sqn. Clerk; of Hamilton, NSW; b. Stockton, NSW, 18 Jun 1924.

[3] F-O C. R. Fairbairn, DFC, 419988; 50 Sqn RAF. Student; of Skipton, Vic; b. South Yarra, Vic, 3 Jun 1924. Killed in action 1 Feb 1945.

which was then hit by flak and sustained further damage. Fairbairn persevered with his homeward flight until luckily the propeller of the damaged engine sheared off and the Lancaster, although still difficult to fly, became more manageable and returned safely to base.

Nor did Bomber Command entirely neglect the North Sea ports and cities in the north-central plain of Germany. Thirty-three Lancasters of Nos. 463 and 467 joined in a daylight raid against Wilhelmshaven on 5th October but this attack, made in poor weather, was not successful. A

NORTH SEA PORTS

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dispatched	Attacking	Sqn No.	Disp	Atkg			
1944									
Oct 5	Wilhelmshaven	221	219	463	16	16	1,082	1	—
				467	17	16			1
Oct 6-7	Bremen	263	256	463	18	18	999	5	1
				467	17	17			—
Oct 15-16	Wilhelmshaven	506	492	460	5	5	2,136	7	—
				462	9	8			—
				466	11	10			1

much larger force of 506 aircraft made a night raid on 15th-16th October when R.A.A.F. crews from Nos. 460, 462 and 466 made only cautious claims of bombing accuracy. In fact heavy damage had been achieved, evenly distributed through the built-up areas but mainly affecting civilian dwellings, public buildings and public utilities. Bremen, already heavily attacked in August, was subjected to a fierce incendiary raid[4] on 6th-7th October when No. 5 Group gutted large sections of the Neustadt district and caused further damage in the already ruined Altstadt section. There was some industrial damage but the main result of this raid was to raise the estimated total of housing accommodation destroyed in Bremen to 70 per cent.

Nine days later Nos. 463 and 467 again carried a predominantly incendiary load to Brunswick. Elaborate electronic and tactical countermeasures were used that night to confuse enemy fighter defences and the bombers also found the target clear of cloud. In these favourable conditions the master bomber quickly corrected a tendency for early arrivals to undershoot with their bombs and fires were soon raging throughout the old town, which was left in ruins. Only one aircraft was shot down but crews

[4] The load was 152 tons of HE, 847 tons of incendiaries.

complained of the indiscriminate jettisoning of unused incendiary clusters during the return journey and one aircraft of No. 463 was affected by such an incident. The navigator was badly injured and later died; the tail plane, fuselage, port wing and starboard engines were all damaged but luckily the aircraft did not catch fire and was coaxed back to an emergency airfield in England.

R.A.A.F. squadrons had mixed success on 6th-7th December when both Osnabruck and Giessen were attacked. The Halifaxes sent to Osnabruck failed to achieve any real concentration of bombing as crews were unable to see the target markers. Nos. 463 and 467, in a deeper penetration against both the city and marshalling yards of Giessen, had clear weather and, in a particularly destructive attack, laid waste the northern suburbs, against more than usually determined enemy fighter opposition. Wing Commander Forbes of No. 463 reported that enemy fighters appeared to wait until the main force was called in to bomb before they dropped high-level flares which illuminated the whole area. Forbes was on his bombing run when his Lancaster was attacked by three Ju-88's, but good fire control and instructions for evasion given by Flight Lieutenant Winston[5] (the squadron gunnery officer) shook off the fighters. Shortly afterwards two more Ju-88's attacked but these also were outmanoeuvred. During these clashes one fighter was seen going down in a shallow dive and it was claimed as possibly destroyed. Flying Officer Bennett[6] was also on his bombing run when he saw an Me-110 taking up position to attack another Lancaster. He ordered his mid-upper gunner to open fire and the port mainplane of the fighter was seen to break away and the Me-110 spiralled downwards on fire.

The main weight of Bomber Command attack during October, November and early December 1944 was thus primarily directed against industrial cities; the majority of these were also key points in the enemy rail network and much incidental damage to enemy communications resulted. The theoretic priority given to the "transportation plan" was thus preserved, and particularly emphasised in the raids against Saarbrucken, Heilbronn and Giessen when in each case marshalling yards were given as one of the prime aiming points. Throughout this period, however, the major effort in any specific offensive against German communications was made by the American Eighth Air Force, although early in November Bomber Command was exhorted by the Combined Strategic Targets Committee to make a more positive contribution in view of the discouragingly slow progress of the Allied land forces. This plea resulted in attacks against six railway centres in west Germany and against two important waterways.

Of the six special rail targets R.A.A.F. squadrons attacked only two. On 21st-22nd November 23 Lancasters of No. 460 flew in a force of 283 to bomb marshalling yards at Aschaffenburg, but heavy low cloud

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[5] F-Lt A. C. Winston, DFC, 402605. 199 Sqn RAF, 466 and 463 Sqns. Clerk; of Burwood, NSW; b. Rockdale, NSW, 13 May 1915.

[6] F-O K. E. H. Bennett, 424117. 61 and 189 Sqns RAF, 463 Sqn. Draftsman; of Annandale, NSW; b. Paddington, NSW, 15 Apr 1922. Killed in action 18 Dec 1944.

foiled the master bomber who instructed crews to bomb on navigational or radar fixes. Most aircraft bombed on a large red glow which H2S radar confirmed as being in the general target area but which some crews thought was a decoy. Photographs taken after the attack showed some damage to station buildings, the goods depot and rolling-stock as well as to scattered industrial and residential buildings north of the marshalling yards, but it was a disappointing result for the expenditure of 1,350 tons of bombs. Twenty-nine crews of Nos. 462 and 466 were far more enthusiastic on 5th-6th December when a larger force of 497 Lancasters and Halifaxes attacked Soest to follow up a daylight raid by the Eighth Air Force. This time there were no difficulties in identifying the target and fires spread rapidly, accompanied by heavy ground explosions. The actual damage caused by this raid could not be distinguished from that created in the earlier daylight raid, but the general effect of both was to overload repair facilities and, at least temporarily, to create serious delays in all types of rail traffic through this area.

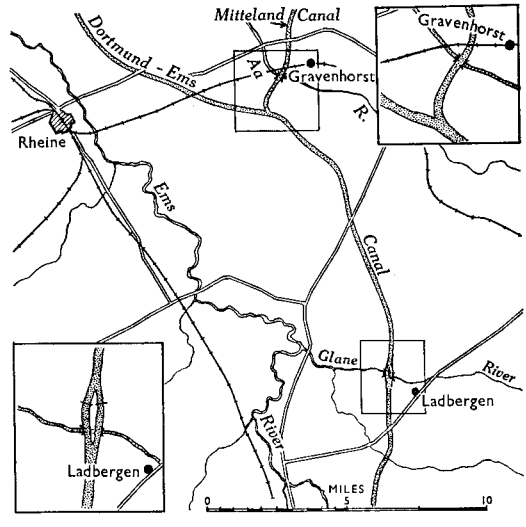
NORTH-CENTRAL GERMANY

	Target	Total Force		RAAF Force			Tons of Bombs	Total air-craft lost	RAAF air-craft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944									
Oct 14-15	Brunswick	240	233	463	20	20	847	1	—
				467	19	18			—
Dec 6-7	Giessen	263	251	463	19	19	1,207	7	1
				467	19	19			—
Dec 6-7	Osnabruck	453	416	462	14	14	1,370	8	—
				466	13	12			—

Bomber Command showed more interest in the proposal to attack the heavily used internal waterway system of Germany, especially the Dortmund-Ems canal which linked with the Mitteland canal to provide a direct passage from the Ruhr to central and eastern Germany. The Dortmund-Ems canal had already been breached on 23rd-24th September but had been repaired when, on 4th-5th November, Nos. 463 and 467 each dispatched 12 Lancasters in a force of 168 to bomb the canal near Ladbergen. Enemy fighters were active and Flying Officer George[7] of No. 467 had his Lancaster damaged and his bomb aimer blinded before

[7] F-Lt S. V. George, DFC, 412944. 467 Sqn, 238 Sqn, 242 Sqn and 1315 Flt RAF. Bank clerk; of Burwood, NSW; b. Stanmore, NSW, 3 May 1912.

reaching the target, but he bombed successfully only to suffer two more attacks from enemy fighters on the return flight. Photographic reconnaissance proved that a large breach had been made in the western (main) arm of the canal and that a large section of embankment of the eastern (by-pass) arm had also been destroyed. This attack rendered both arms impassable to traffic and thus created a complete blockage between the Ruhr and the North Sea and between the Ruhr and the Mitteland canal.



As these waterways traditionally carried most of the coal, coke, iron ore, oil and heavy goods required by industry over a wide area it was a significant blow. However, it was only temporary, for again the Germans began feverishly to repair the damage, and by 21st-22nd November another attack by No. 5 Group was warranted. The aiming point was again close to the Ladbergen bottleneck at a point where the western arm of the canal crosses the River Glane. Conditions for attack were far from ideal as a blanket of cloud covered the target at an altitude of 4,000 feet, but many of the 30 R.A.A.F. and 90 other crews of the main force showed great determination in descending below cloud so that they might achieve a precision attack. These tactics, typical of the especially aggressive spirit consciously propagated in No. 5 Group, were successful and the aqueduct received many direct hits. Other bombs fell on the canal banks and a breach 190 feet in length was made south of the aiming point while the safety lock to the north was also damaged.

The Waddington squadrons had also set out on 6th-7th November to bomb an embanked stretch of the Mitteland canal at Gravenhorst but this attack was abandoned because of thick cloud. Ten aircraft were shot down including three from No. 463, while two crews of No. 467 had to beat off determined fighter attacks during this disappointing and abortive raid. A repeat attack was ordered for 21st-22nd November, but as Nos. 463 and 467 were at Ladbergen that night only a few R.A.A.F. aircrew[8] operated in this force. Again attacks were made successfully from below cloud level and the canal was breached and drained of water for a distance of approximately 31 miles, leaving many barges stranded.

[8] Thirteen of the 143 Lancasters were piloted by Australians.

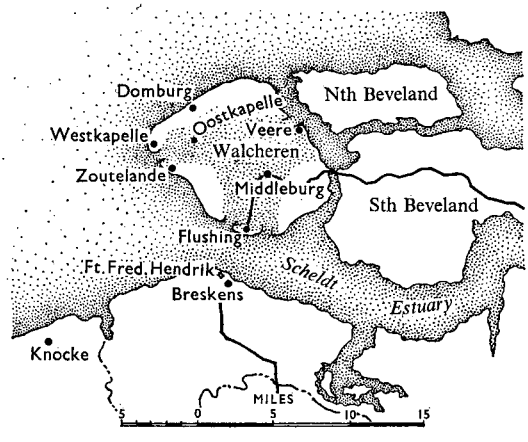
Great as was the conviction of Bomber Command that strategic bombing was the key to Germany's ultimate collapse[9] there were inevitably tasks beyond the capabilities of A.E.A.F. which the heavy bombers had to undertake in support of the army. The failure of General Montgomery's bold attempt to turn the enemy flank at Arnhem forced him to concentrate on subduing strong and fanatical enemy garrisons in Breskens, the isthmus of South Beveland and the island of Walcheren whose guns dominated the Scheldt estuary. Antwerp had been captured on 4th September but until its approaches were cleared it could not be used as a major supply port for the Twenty-first Army Group. Montgomery was thus faced with the necessity of holding his Nijmegen salient while Canadian divisions began a long, bloody attempt to dislodge the battle-tried and well-equipped German *64th Division,* which had already been given three weeks respite to dig itself in around the fortifications of the Breskens pocket. Plans were made for other divisions to attack through South Beveland and for a final amphibious assault on Walcheren.

To hamper the effectiveness of possible enemy counter-attacks against the flank of the Twenty-first Army Group, Bomber Command in daylight on 7th October attacked Emmerich and Kleve. Thirty-one Lancasters of No. 460 (9 per cent of the attacking force) bombed Emmerich in good weather marred only by a slight haze and reported many fires and pillars of smoke. The centre of the town was devastated and damage was widespread in all suburbs; storage sidings and harbour facilities were particularly affected. Equally good results were obtained by Nos. 462 and 466 in a well-concentrated attack on Kleve which practically wiped out the central and north-east parts of the town. Meanwhile on 3rd October Bomber Command had already begun a series of 17 raids in support of the final assault on Walcheren. During these 17 attacks 1,817 heavy bombers dropped 8,687 tons of bombs against sea dikes and gun batteries. R.A.A.F. squadrons joined in only 11 raids, contributing 245 aircraft and dropping 1,295 tons.

The greater part of Walcheren lay below sea level protected from inundation by a massive sea wall and intersecting dikes and steep banks. In such difficult terrain an airborne landing was considered unwise, but unless the defences could be reduced a seaborne assault was also difficult. Accordingly it was planned to breach the sea wall by aerial bombing and thus cause flooding, make gun positions untenable, restrict enemy movements, and, if practicable, provide an entry point for amphibious craft to attack the defences from the rear. No. 460 took part in the first raid during the afternoon of 3rd October when without loss a force of 259 Lancasters attacked the 300-feet thick sea wall at Westkapelle. A breach was made early in this attack and by 3 p.m. the gap had widened so that an area stretching inland for about one mile and 500 yards across had been flooded. This quick success led to a reduction in the size of forces employed on this type of attack. On 7th October Nos. 463 and 467

[9] In October 1944 General Spaatz also thought "it may still be possible to beat up the insides of Germany enough by air action to cause her to collapse next Spring. . . ."

provided 23 out of 49 Lancasters which attacked the sea wall west of Flushing while other units of No. 5 Group attacked dikes east of the town. Wing Commander Forbes led the westerly raid which secured many direct hits on the wall, some with delayed-action bombs. Seven Lancasters of No. 467 were hit by flak and one piloted by Flying Officer Stewart[1] was badly damaged as they pressed home their attacks, but all returned safely to base. Later that day it was seen that flooding from the Westkapelle breach had extended beyond Middleburg and that both east and west of Flushing some two square miles of flooding had occurred. The island was by this time almost cut in two but a further attack near Veere in the north-east on 11th October virtually completed the flooding of low-lying parts of the island. Finally on 17th October a repeat attack was made on the Westkapelle breach in an attempt to widen it so that assault-craft could pass through.



The flooding of Walcheren was achieved by fewer than 500 sorties, but nearly three times this scale of effort was then expended against the heavy coastal batteries at Breskens and on Walcheren which had been part of the Atlantic Wall defences and which completely dominated the Scheldt sea approaches. Only batteries on the higher ground were bombed as it was hoped that flooding would eliminate the others, and this phase of attack began on 11th October when Nos. 463 and 467 dispatched 36 out of 115 Lancasters which plastered batteries near Flushing with 612 tons of bombs, achieving hits and near misses at all four aiming points. On the same day No. 1 Group attacked two groups of batteries at Fort Frederik Hendrik on the mainland near Breskens. One attack was very successful but low cloud enveloped the other aiming point and No. 460 was ordered to return to base without bombing.

This disappointment was assuaged next day when 15 Lancasters of No. 460 returned in a force of 96 aircraft which destroyed two and damaged a further two of the five gun positions at this point. The Flushing batteries were attacked again on 21st October by No. 3 Group, and by No. 5 Group on the 23rd, when in the face of bad weather and apparently reinforced anti-aircraft defences, the R.A.A.F. squadrons lost three aircraft, had five more badly damaged, and considered that many of their

[1] F-Lt G. H. Stewart, DFC, 18221; 467 Sqn. Farmer; of Swan Hill, Vic; b. Banyena, Vic, 2 May 1919.

bombs had overshot the target. In preparation for the final assault on Walcheren timed for 1st November Bomber Command sent out five forces on 28th October, when No. 462 attacked gun positions at Oostkapelle and No. 466 others at Domburg. Next day a total of 358 bombers attacked 11 gun targets, No. 460 bombing Domburg, No. 462 Westkapelle, and No. 466 Domburg and Zoutelande batteries. Finally on 30th October No. 5 Group sent out forces against Westkapelle and Flushing, and in the latter attack crews of No. 463 saw bombs bursting across their target while No. 467 delivered a load of bombs with delayed-action fuses intended to embarrass the enemy during the critical assault period.

When Allied commandos attacked Flushing and Westkapelle on 1st November they found that Bomber Command had reduced but by no means silenced enemy gun defences. However the Westkapelle breach served its purpose well and let in amphibious vehicles and troops to take the heavy batteries from the rear. On 4th November other troops crossed from South Beveland to take the Veere positions and two days later all Walcheren was in Allied hands. The last remnants of the Breskens garrison had surrendered at Knocke on 3rd November and the last battery capable of barring the Scheldt estuary had fallen. The approaches to Antwerp, however, were still blocked by minefields and, despite feverish activity to clear them, the first supply convoy for the Twenty-first Army Group did not reach Antwerp until 28th November. During this period Montgomery could do no more than achieve minor improvements to Allied positions along the line of the River Maas. General Eisenhower had brought the Ninth American Army into the line alongside the First Army in the American sector early in November and planned a drive towards the Rhine at Cologne finally timed for 16th November. Immediately after the fall of Walcheren, all groups of Bomber Command and the Eighth Air Force were warned to be ready to make attacks in full strength to knock out enemy front-line defences along the River Roer half an hour before the ground troops were to advance. In the event the air plan (although it entailed a five-day delay while awaiting favourable weather) went well and provided the heaviest tactical bombardment up to that time.

On 16th November between 11.10 a.m. and 12.40 p.m. 1,191 American heavy bombers dropped 4,120 tons of fragmentation bombs on Eschweiler, Langerwehe, and other positions with the object of obtaining maximum effect on enemy front-line troops and equipment without causing such cratering of the battlefield as would impede attacking troops. At the same time 1,188 Lancasters and Halifaxes with heavy bombs were sent against the fortified base towns of Duren, Julich and Heinsberg with the aims of completely destroying buildings and strongpoints and blocking all roads and intersections. The attack on Duren was made by 498 Lancasters including 53 from Nos. 460, 463 and 467, against negligible opposition and in good weather. Bombing was accurate and intense, 2,713 tons falling in a very concentrated attack which destroyed almost the entire built-up area and blocked all roads with rubble and debris. A similar force of Halifaxes dropped 1,946 tons of bombs on Julich where crews of

Nos. 462 and 466 reported huge pillars of smoke rising to 8,000 feet soon after the attack began. Julich, with its smaller town area, was even more devastated than Duren; the road bridge across the Roer was destroyed and a cratered area extended beyond the town on all sides. Meanwhile No. 3 Group with a smaller force of 182 Lancasters[2] laid waste Heinsberg. All three raids were thus brilliantly successful at a total cost of only four Lancasters. It had been agreed during the planning phase that repeat attacks would be made on Julich and Duren if necessary, but so complete had been these hammer blows that American army authorities cancelled the requirement.



The drive towards the Rhine began auspiciously with four divisions of the VII American Corps moving forward at 12.45 p.m. with bomb smoke still rising along the front line, but the advance had gone only a mile when extensive minefields and deep fortifications not disabled by the American fragmentation bombing permitted the enemy to rally. Thereafter the Germans fought doggedly for every yard of ground and by the end of the month had lost only a dozen villages and withdrawn only from four to ten miles. The IX and XXIX American Tactical Air Corps supported Bradley's troops during these slogging battles, but, with recurrent rain falling, a new threat requiring assistance from Bomber Command arose as the American troops approached the Roer. The river was already very swollen, but the Allies were acutely aware that, while the enemy held the Urft and Schwammenauel dams at the head of the valley, he could at will release a flood which would carry away all bridges and make the river impassable for some time. Already on 7th October, as a corollary to the attacks on Kleve and Emmerich, No. 617 Special Duties Squadron had attacked the Kembs dam with "Tallboy" (12,000-lb) bombs and had effectively breached the western part of the

[2] Thirty-seven aircraft from six of the squadrons engaged in this raid were piloted by Australians.

dam. No. 9 Squadron R.A.F. had then made a Tallboy attack on 15th October against the Sorpe dam but, although Flying Officers Dunne, Arndell,[3] Williams[4] and Jones all reported hits on the face or crown of the dam, its structure absorbed these great blows and stood firm.

The Roer dams were known to be equally as strong as the Sorpe and thus, when it became an urgent military requirement to damage and drain them, Bomber Command decided to employ much larger forces than in the previous one-squadron Tallboy attacks. On 3rd December 200 Lancasters of No. 1 Group went to Urft but it was covered by cloud which hid the target indicators. As neither the master bomber nor his deputy could identify the aiming point all squadrons, including No. 460, abandoned the attack. Next day No. 8 Group attacked Urft with 30 specialist pathfinder crews which attacked in three waves, each wave bombing on a signal from the leading aircraft, but no assessment of results could be made. On 8th December the task was given to No. 5 Group but weather conditions and smoke rising from bomb bursts caused the master bomber to break off the attack when only 129 out of 205 Lancasters had bombed. All except one of the 29 R.A.A.F. aircraft carried their bombs back to base. No. 5 Group tried again on 11th December with 239 aircraft but only 7 out of 30 R.A.A.F. crews bombed through gaps in the cloud as strict orders had been given that there must be no orbiting or second runs over the target. Some of the 180 crews who did bomb claimed direct hits without, however, any evidence of serious damage to the Urft dam. Meanwhile on 5th December No. 3 Group had sent 56 Lancasters to attack the Schwammenauel dam, but only two aircraft dropped their bombs. Subsequent photographs revealed that the head of the Urft dam was deeply chipped but that it was not vitally damaged by nearly 2,000 tons of bombs rained on it. Bomber Command had failed to solve Bradley's tactical problem, and he had reluctantly decided to capture the dams by ground action before attempting to cross the Roer River when all such plans were upset by the enemy offensive in the Ardennes on 16th December.

Nor could Bomber Command ignore Admiralty requests to intervene in maritime warfare. Minelaying remained an important commitment even though many former mining areas were now in Allied hands. About 3,000 mines (687 sorties) were laid, mostly in areas best suited to impede traffic between Germany and Norway; most squadrons shared in this task. The increasing threat from *Schnorkel* and closed-cycle U-boats also demanded attack on Norwegian bases which now supported the enemy submarine offensive. No. 6 (R.C.A.F.) Group made an attack on U-boat pens at Bergen on 4th October which caused considerable damage to workshops and shipyard facilities and sank four U-boats.[5] Only three

[3] F-O K. C. Arndell, DFC, 414983; 9 Sqn RAF. Packer; of Brisbane; b. Grafton, NSW, 4 Jul 1923.

[4] F-Lt A. F. Williams, 418905. 9 Sqn RAF, attached Eighth USAAF 1944. Clerk; of Geelong, Vic; b. Ballarat, Vic, 3 Jun 1923.

[5] *U92, U228, U437* and *U993.*

R.A.A.F. pilots flew in this brilliant raid, compared with which a heavier repeat raid made by 244 Lancasters of No. 5 Group on 28th-29th October was a failure. The master bomber ordered crews to descend to altitudes ranging from 5,000 to 8,000 feet, but even so most crews could not see the markers and had to abandon their attack. Many of the 35 crews of Nos. 463 and 467 made repeated orbits in determined efforts to identify the target but only 10 succeeded in bombing. All squadrons were similarly affected and only 51 crews claimed any attack.[6] Even more disappointing was a raid against submarine pens at Trondheim on 22nd-23rd November when crews of Nos. 463 and 467 were airborne for 12 hours only to find the target hidden beneath a very efficient smoke-screen which caused the master bomber to cancel the operation.

Of the naval targets, the one which still retained a pre-eminent position in the minds of aircrew, although steadily declining as a real threat, was the German battleship *Tirpitz*. After the inconclusive attack mounted by Lancasters from a Russian base on 15th September, the *Tirpitz* moved south to Tromso Fiord and lay heavily protected by surface and under-water nets in a location where meteorological idiosyncrasies gave clear skies perhaps one day a week. But *Tirpitz* was now within reach of the specialist units of No. 5 Group, which had been fitted with more powerful engines to carry Tallboy bombs. Thirty-eight Lancasters from Nos. 9 and 617 Squadrons took off from Kinloss and Lossiemouth in Scotland on 29th October for the round trip of 2,250 miles. General weather was good but cloud intervened when the Lancasters were on their bombing runs and all the Tallboys fell harmlessly into the water. A fortnight later on 12th November the same squadrons took off before dawn and, although the weather on their long circuitous low-level flight to Tromso was far from promising, they were heartened to find the *Tirpitz* lying in a local patch of clear visibility. Careful routeing had caught the enemy unawares and the usual smoke defences were not in operation, so that crews were at last rewarded with conditions ideal for attack.

Of the four R.A.A.F. pilots of No. 617 Flying Officer Kell saw his bomb fall in the centre of smoke hastily generated on the superstructure of the battleship and he claimed a hit or a very near miss; Flying Officer Ross reported that his Tallboy fell on or very close to the bows, while both Flight Lieutenant Sayers and Flying Officer Lee saw their bombs disappear into smoke raised from previous explosions. In all 29 12,000-lb bombs were dropped and the battleship caught fire amidships and was engulfed in a large explosion. The Lancasters were at first met with gunfire from both heavy and light guns on the ship but this had ceased when the attack closed. Flight Lieutenant Buckham, who had completed a tour of main-force operations before volunteering to remain with No. 463 as pilot of a special film-unit Lancaster, accompanied this force and circled the target throughout the attack. He was about to follow the departing bombers when his crew reported that the *Tirpitz* had begun to heel over,

[6] Flying Officer J. W. Hoare was the captain of the only aircraft of No. 630 Squadron which bombed on this occasion.

so he quickly turned round to obtain further film records of the battleship, which was then listing at 70 to 80 degrees to port. Two hours later a reconnaissance aircraft reported that only the bottom of the ship was showing.

Against this backdrop of an unprecedented winter offensive by Bomber Command, other R.A.A.F. units and individual aircrew appeared to play only minor roles. Coastal Command had no satisfactory answer to the problem of new U-boat dispositions and tactics while A.D.G.B. and A.E.A.F. operations had to be readjusted to suit the ground stalemate which followed Arnhem. Bad weather either at base or in the target areas affected these lighter units more than Bomber Command, to which priorities in electronic gear, airfield equipment and flight-control facilities had conferred the ability to operate almost non-stop. Moreover in these other commands the degree of R.A.A.F. effort was being reduced by casualties and posting of tour-expired aircrew to non-operational duties, without any corresponding influx of new trainees; only the unceasing needs of Bomber Command made any real reduction in the swollen holding centres for basic aircrew. But while there was little scope for personal distinction there were many tasks still to be done to harass enemy ground forces, to prevent any resurgence of the *Luftwaffe,* and to prepare for a spring offensive.

No. 453 Squadron, now back in A.D.G.B., began operations from Coltishall early in October with a mixture of defensive patrols, offensive Ranger attacks against trains and other targets of opportunity in Holland, and Jim Crow searches for enemy coastal shipping, aggregating 171 sorties for the month despite bad weather and an irritating run of mechanical failures which caused Squadron Leader Esau temporarily to ground all the Spitfires at the end of the month. Armed reconnaissance patrols continued in the first half of November, but with the arrival of new Mark XVI Spitfires No. 453 was increasingly switched to bombing attacks against A-4 rocket dumps and launching sites near The Hague from which the enemy was able to attack both London and the vital port of Antwerp. This task retained its priority throughout December 1944. Similarly the Mosquitos of No. 456 Squadron spent October and early November in mainly uneventful night patrols over Belgium and Holland and thereafter were employed exclusively on anti-diver patrols: only 384 sorties were made compared with 556 during the previous quarter.

There was still a heavy sprinkling of Australian fighter pilots in A.D.G.B. squadrons including experienced leaders such as Flight Lieutenants Anderson,[7] Refshauge,[8] Reid,[9] Wilson[1] and Gale.[2] Apart from routine

[7] F-Lt R. E. Anderson, 402337. 457 and 452 Sqns, 32 Sqn RAF, 84 Gp RAF, 41 Sqn RAF. Clerk; of Fairfield, NSW; b. Brisbane, 22 Oct 1920.

[8] F-Lt J. G. H. Refshauge, 409447; 41 Sqn RAF. Student; of Hawthorn, Vic; b. Sandringham, Vic, 28 Apr 1919.

[9] F-Lt D. J. Reid, DFC, 401666. 453 Sqn, 152 and 41 Sqns RAF. Traveller; of Elsternwick, Vic; b. Yarraville, Vic, 28 Apr 1920.

[1] F-Lt M. O. Wilson, 408529; 124 Sqn RAF. Bank clerk; of Camberwell, Vic; b. St Kilda, Vic, 6 May 1918.

[2] Sqn Ldr B. E. Gale, DFC, 401116. 111 and 165 Sqns RAF. Clerk; of Warburton, Vic; b. Bristol, England, 15 Mar 1920.

defence tasks against enemy sneak raiders, which rarely appeared, these units were increasingly used for entry or withdrawal cover to Bomber Command daylight raids against the nearer enemy targets. Up to 30 R.A.A.F. pilots might operate on any one raid, but they rarely met any opposition from the *Luftwaffe*. Scattered among the fighter-bomber units of Second T.A.F. based on continental airfields was a smaller number of Australians of whom Flight Lieutenants Markby,[3] Steel[4] and Strong[5] were outstanding. Their main task at this time was to supplement the much larger American and medium-bomber assault on road, rail and river bridges immediately behind the front line in Holland and Germany. In a typical attack on 24th October Steel led eight Typhoons of No. 174 on an armed reconnaissance but encountered heavy cloud and bad visibility so turned to his alternative target of two pontoon bridges over the River Maas. The Typhoons were met by intense light flak but all attacked and one bridge was badly damaged by rocket projectile and cannon strikes. Strong, immortalised in the official diary of No. 182 as "a very gallant gentleman" whose "thoughts were always for other people's welfare and never of his own", was killed leading a similar attack against pontoon bridges near Donk on 2nd November.

There were relatively few R.A.A.F. pilots in the Boston and Mitchell squadrons of Second T.A.F. which hammered repeatedly against bridges around Venlo and Roermond, but, as on occasions one in every three aircraft sustained flak damage, the continuous and deliberate risks taken demanded high morale. The raids were not conclusive, in general merely keeping pace with enemy repair work, but in this context the dozen raids of Flying Officer Kelly,[6] nine by Warrant Officer Hicks[7] and eight by Flying Officer Thompson[8] during this period, which achieved many direct hits against various bridges, are noteworthy.

No. 464 Squadron continued to attack enemy communications under cover of darkness and flew 421 sorties between 1st October and 31st December 1944. Throughout this period the unit operated from the overcrowded airfield at Thorney Island which was too far from the target areas to allow an optimum level of operation. As early as 3rd October the adjutant went to France to make preparations for the proposed move of the squadron, but insufficient airfields were available to house all medium, light and fighter-bombers, and it was not until February 1945 that room could be found for the night harassing bombers at Rosieres-en-Santerre. Meanwhile, although the factor of bad weather became increasingly dominant as winter deepened, from 10 to 15 R.A.A.F. Mosquitos

[3] F-Lt H. V. Markby, DFC, 409421; 174 Sqn RAF. Clerk; of Armadale, Vic; b. Armadale, 27 Dec 1922.

[4] F-Lt G. J. Steel, DFC, 405701; 174 Sqn RAF. Jackeroo; of Bollon, Qld; b. St George, Qld, 23 Nov 1920.

[5] F-Lt P. H. Strong, DFC, 420405; 182 Sqn RAF. Telephone operator; of Kirribilli, NSW; b. London, England, 9 Feb 1919. Killed in action 2 Nov 1944.

[6] F-Lt R. A. Kelly, 429700; 226 Sqn RAF. Insurance clerk; of Brunswick, Vic; b. Melbourne, 25 Apr 1922.

[7] P-O B. I. H. Hicks, 417078. 116 and 98 Sqns RAF. Farmer; of Moonta, SA; b. Moonta, 9 Mar 1916. Killed in action 2 Feb 1945.

[8] Sqn Ldr J. N. Thompson, 432288; 226 Sqn RAF. Accountant; of Sydney; b. Crows Nest, NSW, 19 Mar 1921.

would scour the enemy hinterland on any night when operations were possible. Outstanding results in terms of positive destruction could rarely be expected, but the constant pressure of these night operations prevented the enemy from gaining respite from the larger daylight attacks of A.E.A.F. On 5th-6th October during a typical night's work 15 crews of No. 464 sent to attack enemy movements around Geldern, Venlo and Wesel dropped 36 500-lb bombs and used 2,650 rounds of cannon shells and 5,680 rounds of machine-gun bullets in strafing various targets. Flight Lieutenant Dunkley strafed two large barges and bombed a collection of 30 small craft; Flying Officer Simes[9] fired on two small boats and then bombed a motor vessel and a quay; Flying Officer Greenshields[1] attacked railway workshops and the passenger station at Rheda; Flight Lieutenant Shrimpton attacked a convoy of 30 vehicles, while other crews attacked lights, dumps, roads and a railway crossing at Geldern. On the next night 13 R.A.A.F. crews attacked targets on Walcheren. Thereafter throughout October the Mosquitos shared their effort between the familiar enemy communications targets in the Rhineland and objectives around Flushing and Breskens which were of special importance in the forthcoming assault on Walcheren.

This steady attrition of rail and road traffic, of barges, ferries and dock facilities in the Rhine delta and Scheldt estuary was interrupted on 31st October by a daring exploit which apart from military considerations had tremendous political and propaganda value. This was a daylight raid by 24 aircraft of No. 140 Wing against the Gestapo records centre, housed in two buildings at Aarhus University in Denmark, and was an admirable tonic for Nos. 21 (R.A.F.), 464 (R.A.A.F.) and 487 (R.N.Z.A.F.) Squadrons, which had for months been operating almost entirely by night, in steadily deteriorating weather, against targets which gave little opportunity for outstanding personal achievement. The increased activity of the Danish underground army during 1944 had evoked energetic reprisals from the Gestapo. When asked to help, A.E.A.F. considered that the most fruitful method might be to destroy the dossiers and documents collected at Aarhus to be used by the Gestapo in hunting down and prosecuting the Danish patriots. An accurate model of the target buildings was constructed and the whole attack planned in minute detail; even the fusing of bombs carried by the four sections each of six Mosquitos was arranged so that each aircraft could bomb without danger of being blown up by preceding bombs and yet leaving as little time as possible between each wave of attack.

The whole force was led by Wing Commander R. W. Reynolds (R.A.F.); Wing Commander Langton, Squadron Leaders Dunkley and Clayton,[2] Flight Lieutenants Shrimpton and Henderson,[3] Flying Officer

[9] F-Lt K. O. Simes, DFC, 420285; 464 Sqn. Clerk; of Tenterfield, NSW; b. Tenterfield, 11 May 1922.

[1] F-O W. A. Greenshields, 409692; 464 Sqn. Gymnastic instructor; of Port Melbourne; b. Melbourne, 12 Oct 1917. Killed in action 27 Nov 1944.

[2] Sqn Ldr S. Clayton, DSO, DFC, DFM, 47870 RAF. 105 Sqn RAF, 464 Sqn. Regular airman; of Morecambe, England; b. Dilworth, England, 7 Mar 1916.

[3] F-Lt W. C. Henderson, DFC, 415435 RNZAF; 464 Sqn. Agricultural labourer; b. Milton, NZ, 13 Apr 1918.

Johnston[4] and Flight Sergeant Mulligan[5] formed the exceptionally strong team sent out by No. 464 for this special occasion. Escorted by 12 long-range Mustangs the 24[6] bombers set off early on 31st October for their round trip of over 1,200 miles. Navigation and timing were good and the formation arrived unheralded over Aarhus just before noon and pressed home a coordinated four-wave attack at almost roof-top height.[7] The raid was an outstanding success and the last crews to bomb reported that only the south-east and north-west corners of the buildings were left standing. Several R.A.A.F. crews fired at trains, moving troops, storage huts and other targets of opportunity as they broke away from their bombing runs.

Plaudits from the Danish Resistance Movement, from the Ministry of Economic Warfare and from Second T.A.F. concerning the Aarhus raid[8] continued to reach the squadron during the first half of November when No. 464 had returned to its task of harassing enemy movement by night near the fronts of the Twenty-first Army Group and Ninth American Army. But operations were possible on only nine nights during November and four during the first fortnight of December, and even on these nights conditions for search and attack in the target area differed widely. Thus on 3rd-4th November only eight out of fifteen R.A.A.F. Mosquitos were able to find suitable targets for either bomb or cannon attack. Better percentages were achieved later during the month but the loss of five aircraft and crews, including Flying Officer Greenshields, a pilot who had shown particular gifts for night harassing work, was a relatively high cost for maintaining this offensive.

Thus at the beginning of December 1944 land fighting appeared to be confined to fairly static clashes in an unduly early winter. Both American and R.A.F. light and medium air units were restricted by inadequate bases, appalling weather and lack of tactical opportunities. Only the strategic bombers which were prosecuting their semi-autonomous campaign to "beat up the insides of Germany" appeared to play a dominant role. This view was particularly apparent to an Australian eye, as an ever-greater percentage of R.A.A.F. aircrew was serving with Bomber Command. The picture was to change, however, with startling rapidity, and the heavy bombers were to lose their independent choice of action.

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[4] F-Lt R. Johnston, 423790; 464 Sqn. Clerk; of Sydney; b. Newtown, NSW, 10 Nov 1922.

[5] P-O J. R. Mulligan, 423164; 464 Sqn. Woolclasser; of Guyra, NSW; b. Guyra, 3 Aug 1922. Killed in action 13 Jan 1945.

[6] Another Mosquito accompanied the force to film the attacks.

[7] In fact one aircraft of No. 487 (RNZAF) did brush one of the buildings and lost its tail wheel and part of its port mainplane.

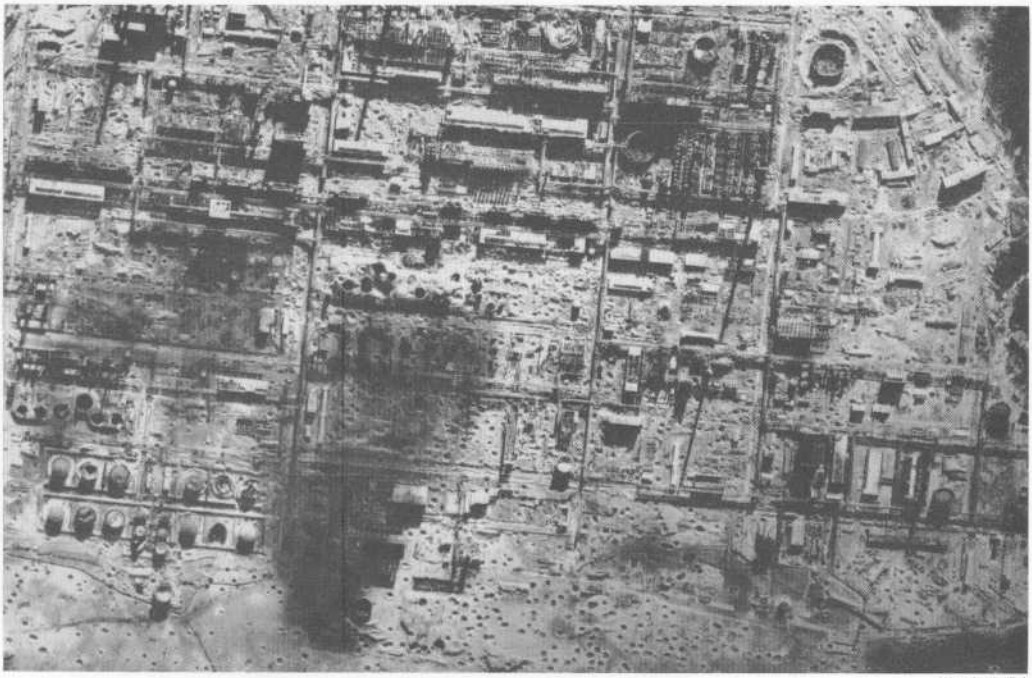
[8] The No. 464 Squadron diary recorded on 16 May 1945 that "this morning all crews who took part in raids on Gestapo Headquarters in Denmark were presented with a pair of sleeve-links and a letter of appreciation from the Danish Resistance Movement".

After the war Danish people contributed money to establish a memorial to men who died in the raids. Part of this was used to found a bursary in Australia in memory of the two Australians who were killed in the raid on Copenhagen in March 1945—Flying Officers Palmer and Dawson of No. 464 Squadron. The bursary is awarded to a student whose father was a former member of RAAF aircrew and who died on active service while engaged on operational duties.



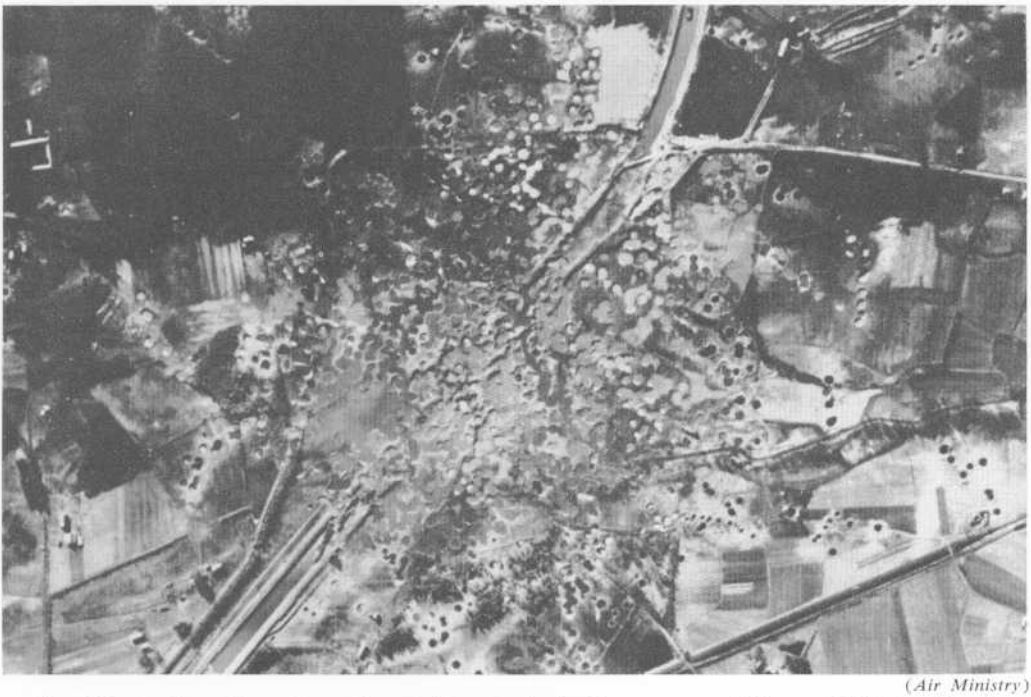
(*R.A.A.F.*)

The railway yards at Giessen on 24th December 1944 after attacks by the Eighth Air Force and Bomber Command.



(*R.A.A.F.*)

The synthetic oil plant at Politz devastated by the Bomber Command attacks of 13th-14th January and 8th-9th February 1945.



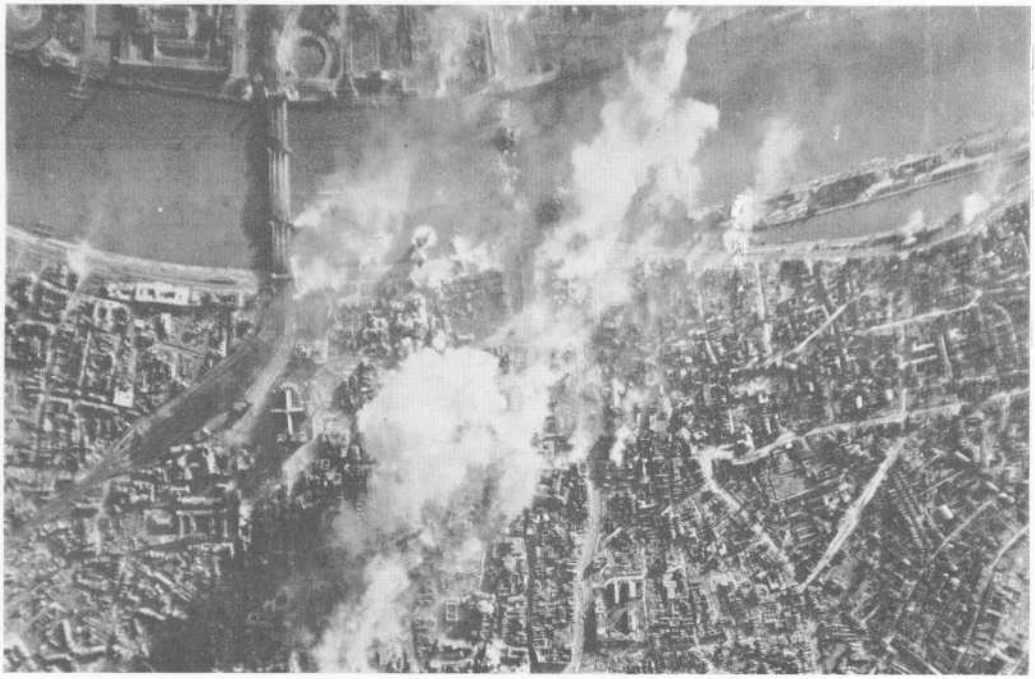
(*Air Ministry*)

The Mitteland canal at Gravenhorst after attacks in January and February 1945 by No. 5 Group when more than 1,500 tons of bombs were dropped. Lancasters of Nos. 463 and 467 Squadrons took part in these raids.



(*R.A.A.F.*)

In another raid on communications, in which the Waddington squadrons joined, the Dortmund-Ems canal at Ladbergen was heavily damaged by Bomber Command in its fourth attack on the target area, on 1st January 1945.



(*R.A.A.F.*)

The wrecked Deutz suspension road bridge at Cologne, 2nd March 1945. The cathedral, with its distinctive "cross" shape, is on the right of the approaches to the Hohenzollern railway bridge.



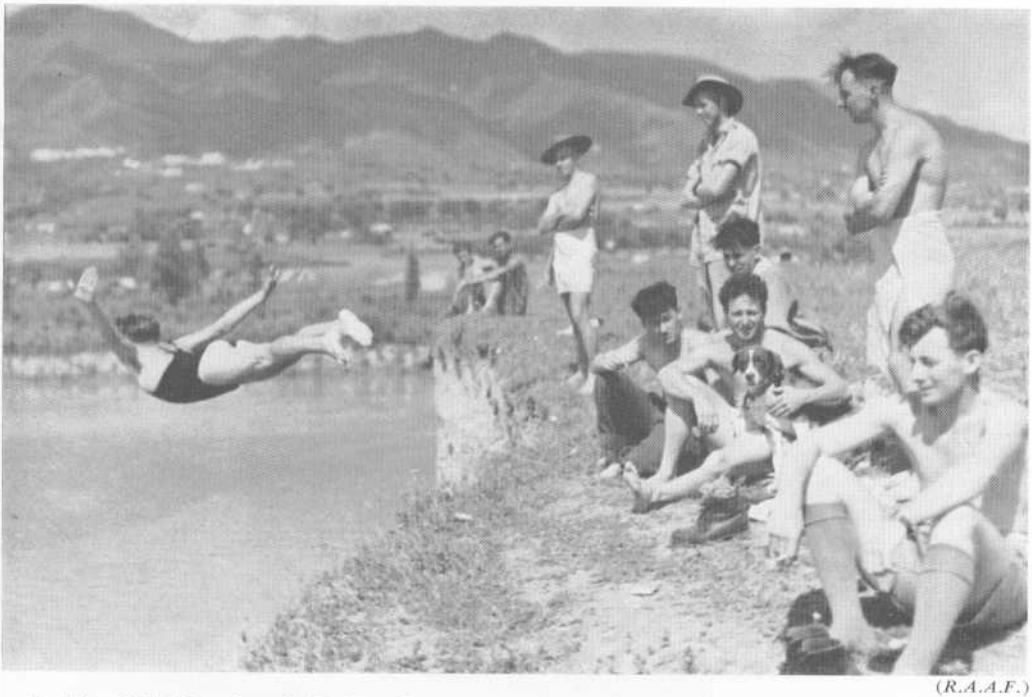
(*R.A.A.F.*)

Allied soldiers pick their way over wreckage at the devastated railway station at Cologne.



(*R.A.A.F.*)

A snow fight between Australians of No. 458 Squadron at Foggia, Italy, in January 1945.



(*R.A.A.F.*)

In May 1944 Nos. 3 and 450 Squadrons moved from Cutella on the Adriatic to San Angelo on the west coast where a runway had been prepared close to the Volturno River. It was springtime and warm enough to enjoy a swim in the winding river.

CHAPTER 14

THE MEDITERRANEAN AND ITALIAN FRONTS 1944-45

AS the tide of war flowed on to lap progressively higher against the shrinking continental areas already becoming prominent in enemy propaganda defiance as "Fortress Europa", the eastern basin of the Mediterranean became virtually a backwater. But it could not entirely be neglected from an air viewpoint, because not only were there peripheral offensive and defensive air tasks but through this area and the "remote commands" ran the tenuous political and tactical threads which connected the European and the Pacific conflicts. Although pared by the knife of necessity which continuously sought offensive units for the main attack fronts H.Q. R.A.F.M.E. had to oppose putative if insubstantial threats from enemy air or submarine attack over a wide area; it also had a vital reconnaissance and opportunist attack role in the Aegean, and administrative and transport responsibilities covering parts of three continents. However shrunken in importance these roles might be in relation to the ultimate air task, Australians alike with airmen of other nationalities were left behind to meet these responsibilities.

Although during the first half of 1944 No. 462 Squadron R.A.A.F. left to make a physical reappearance in M.A.S.A.F. (and a phoenix-like national rebirth in Bomber Command), and No. 454 joined Desert Air Force in Italy, while Australians with other units made similar departures from the area, No. 459 Squadron R.A.A.F. remained in the area east of Malta. By this time reinforcements to the eastern Mediterranean had almost entirely ceased so that those remaining tended to be old hands, senior in recruitment but denied by lessening geotactical opportunities the chance of achieving the eminence accorded to their juniors in more active areas. One squadron alone, No. 680 (photographic reconnaissance), operating Mosquitos and Spitfires from Deversoir during the last year of the war, had three Australian flight commanders, Flight Lieutenants Lomas,[1] Mellor[2] and Yelland,[3] all of whom had enlisted in 1940—a remarkable comparison with the more active theatres where the hurly-burly of opportunities and casualties might have enhanced or obliterated their chances of distinction.

No. 459 had three experienced leaders in Wing Commander Henderson, Squadron Leader McHale and Squadron Leader Kroll, while several of the captains and aircrews had already seen two or more years' fighting in this area. All welcomed the decision to convert the squadron from Venturas to Baltimores in mid-July 1944 as this implied a more aggressive role of day

[1] Sqn Ldr F. L. Lomas, DFC, 400892. 208 Sqn RAF, 451 Sqn, 680 Sqn RAF. Student; of Nhill, Vic; b. Port Macquarie, NSW, 18 Jun 1914.

[2] Sqn Ldr L. S. Mellor, DFC, 401134; 680 Sqn RAF. Grazier; of Hawthorn, Vic; b. Westmere, Vic, 9 Jan 1917.

[3] F-Lt A. M. Yelland, DFC, 401181; 680 Sqn RAF. Clerk; of Camberwell, Vic; b. Yarra Junction, Vic, 7 Mar 1917.

reconnaissance and bombing. It also entailed leaving the relative comfort of Palestine for the sand dunes of Cyrenaica, and the advance road party left St Jean for Berca on 31st July. The air party consisting of 13 Baltimores followed on 9th August, taking over the camp site formerly occupied by No. 16 Squadron S.A.A.F. and the aerodrome (Berca No. 3) previously used by No. 454. The Australians found that little had been left that was of any use and they virtually had to build their new home entirely from their own squadron resources, while continuing the final stages of formation and bombing training with the new type of aircraft. Matters improved when the rear road party arrived on 18th August and two days later the squadron was ready for operations.

Wing Commander Henderson early on 20th August made a close inspection of ports in Kithera and Antikithera but found no targets there except small caiques. Another Baltimore covered Kalamata, Navarino and Pilos, again reporting only minor shipping except at Pilos where a coaster, a floating crane and a large caique presented a worthwhile target for bombers in view of the very critical enemy shipping position in this area. On receipt of the radio signal indicating the sighting at Pilos a striking force of four Baltimores, each carrying one 500-lb and two 250-lb bombs, was readied and took off at 2 p.m. led by McHale, but reached Pilos only to find the harbour almost entirely obscured by low cloud. Attempts were made to bomb the target through gaps in the cloud but no damage was claimed. Nor did the second bombing mission which occurred on 25th August attain any observable results. On this occasion two sections each of three Baltimores led respectively by Henderson and McHale were detailed to bomb a radar station 11 miles east of Cape Lithinon on the south coast of Crete. The single photograph available at briefing time showed only the twin aerials, the remainder of the station being hidden by a fold in the terrain. Escorted by Spitfires the Baltimores reached Cape Lithinon and turned along the coast but could not identify the aerials or any other part of the radar installation and were forced to drop their bombs at an estimated point in distance and bearing from a group of white painted cottages which had been pointed out on the briefing photograph.

These disappointing results brought into focus for No. 459 the difficulties of its new role; they did not damp enthusiasm either for the Baltimore which was much preferred to the Ventura, or for the expressed hopes that No. 459 would be able to help in driving the enemy completely out of the Aegean. But the Australians soon found that as the maids-of-all-work in the severely restricted force remaining with A.H.Q. Eastern Mediterranean, the Baltimores were needed for defensive tasks as well. A submarine scare began on 26th August when it was suspected that a U-boat had left Piraeus to operate off the hump of Cyrenaica, and on that day No. 459 made nine sorties to cover four separate convoys passing through the danger area. This activity continued until the end of the month, accounting for a further 35 flights, all of which were completed without incident. During September convoy protection remained an intermittent task of high

priority and entailed 38 Baltimore sorties, almost entirely on close escort. Throughout September, however, active reconnaissance was a more frequent and welcome duty than anti-submarine work. An air of expectation pervaded the messes as the enemy military position in northern Europe deteriorated and signs began to multiply that there would be at least a partial German retreat from Greece and the Aegean. In all 65 shipping reconnaissance flights were made without bombs but with added fuel loads which gave an endurance of between five and six hours' flying time. There was a general tendency for crews to over-estimate the size of ships seen at Cretan and Aegean anchorages, but the many fine photographs taken on these flights not only redressed the Intelligence picture but formed a basis on which the Australians could improve their recognition of individual ships—a difficult art in this theatre.

The first positive success came on 6th September when five sorties covering almost the entire daylight period were made in the southern Aegean. Flying Officer Gaunt[4] inspected Milos and Siros and shore batteries fired on his Baltimore but only a few very small ships were in port. At 9.40 a.m., however, he found the *Carola* (1,348 tons), one of the largest left to the enemy in this area, escorted by two Ems craft and a BV-138 aircraft, steaming in the direction of Piraeus. The enemy floatplane attacked the Baltimore with rocket projectiles but all missed whereas Gaunt's return fire damaged the BV-138 which dived away to the north behind a headland on the island of Yioura. The convoy also put up intense 20-mm and 40-mm flak but the Baltimore continued to shadow and report the convoy position until the limit of its endurance. Beaufighters of Nos. 252 and 603 Squadrons attacked and damaged the *Carola* as a result of this report. The other flights that day reported only minor shipping in the period before 13th September when Kroll found a K.T. ship (*Kriegstransport*[5]) at Santorin and swept over almost at deck level to rake it with machine-gun fire and to take photographs identifying it as the *Pelikan* (790 tons).

As the result of a Baltimore report on 14th September indicating that the *Drache* (1,800 tons) might be in the harbour at Paros, Beaufighters struck at that island. The *Drache* was not present[6] but a small coaster and an Ems craft were heavily damaged. Two K.T. ships, the *Heidelburg* and *Expel,* were correctly identified by another crew at Monemvasia and both were intercepted at sea and sunk the same night by naval forces. The presence of Allied escort carriers, cruisers and destroyers in the Aegean, obviously heralding some invasion of Greece, stimulated rather than diminished the need for air reconnaissance, and throughout the second half of September the Australians flew an average of three sorties daily to the Aegean while still providing escorts as supply and troop convoys

[4] F-Lt G. D. E. Gaunt, 149419 RAF; 459 Sqn. Clerk; of London, England; b. Leicester, England, 3 Feb 1924.

[5] A fast cargo vessel capable of carrying heavy equipment and fitted with modern loading gear enabling it to make a quick turn-round in port.

[6] The *Drache* had in fact been seen by a Baltimore of No. 459 the previous day in Milos but had been mistakenly reported as a small coaster.

moved into the eastern Mediterranean. The chief value of this unceasing watch on enemy-held ports was to confirm that no unforeseen change had in fact taken place in the weak enemy shipping position. Only one of the ships listed as worthwhile targets was sighted—the *Orion* (900 tons) reported by Flying Officer Gibson[7] between the islands of Naxos and Amorgos on the 23rd. This ship was badly damaged later in the day by Beaufighters and driven ashore in Chendro Bay on Denusa, the wreck becoming a familiar pinpoint.

Beginning on 17th September the Baltimores made opportunist attacks with machine-guns on any coastal road convoys they could find in Crete after their main task of reporting shipping was completed. The only time that bombs were carried during the month was also against road convoys, when, on 19th September, three Baltimores, although their Spitfire escort had to return to base with technical trouble, flew on to strafe vehicles and to bomb road cuttings on the Suda Bay-Heraklion highway.

The tempo of events in Greece soon brought a change in role from reconnaissance to attack for No. 459. Patras was captured on 4th October, Corinth occupied on the 9th and Athens liberated on the 14th, and in the Aegean Lemnos was reoccupied on 17th October. In these circumstances, with complete Allied naval superiority, only two anti-submarine flights and five shipping reconnaissances were required during October, but no fewer than 68 bombing missions were carried out. Maleme airfield on Crete was bombed on 13th October by six aircraft and the same target attacked again on 14th, 16th and 18th October. This target was chosen to hamper obvious German attempts to evacuate key personnel by air now that the sea routes around Crete were dominated by Allied naval forces. This scale of attack could not hope to put the airfield out of commission although its irritant value was clear from the way in which the enemy packed more and more anti-aircraft guns on and around Maleme airfield to protect the vital runways.[8] On 14th October Kroll estimated the number of visible anti-aircraft shell bursts at 200 and on this occasion two of the four attacking Baltimores were damaged.

Calato airfield on Rhodes was attacked by five Baltimores on 20th October and by seven on the 22nd, but on both occasions low cloud hampered the bomb aimers and results were negligible. The squadron was then given the task of reducing gun positions and other strongpoints on Milos, the only important island in the central Aegean left in enemy hands. On 25th October seven Baltimores bombed a battery of 88-mm anti-aircraft guns near the village of Adamas. Attention was switched on the 27th to a battery of four coast-defence guns on the eastern face of the north-eastern tip of Milos which were proving very troublesome to the Allied invasion force already in position and waiting to land troops. On four consecutive days a total of 31 aircraft bombed this stubborn battery,

[7] F-Lt J. B. Gibson, 35659; 459 Sqn. Cadet engineer; of Merewether, NSW; b. Merewether, 20 Sep 1922.

[8] The other main airfields on Crete—Heraklion and Pediada Kastelli—had already been mined and cratered by the Germans. Maleme was at this time the only base open to the Ju-52 and He-111 transports, although the Germans made some use of flying-boats (mainly old Dornier types), to ferry troops to Athens and Salonika.

but although some crews claimed near misses most of the Australians had difficulty in recognising the target from the bombing altitude of 8,000 feet. Another attack was made on 2nd November while Allied ground units were fighting on the island but with no better results. The invasion force withdrew from Milos after a few days and No. 459 returned to strike at the coastal battery with eight aircraft on 21st November but, although bombing accuracy on this occasion reflected the influence of a week of intensive training in close-formation flying and of better pinpoint photographs of the area available at briefing, a direct hit, the only circumstance which would have had decisive effect, was not achieved. These guns had by this time survived bombardment by a battleship, cruisers and rocket-firing, low-flying aircraft as well as the Baltimore attacks but they were still in operation.

Another disappointing series of raids in November was made against Angonia on the west coast of Rhodes where ground Intelligence reports indicated the enemy had an encampment for 1,300 troops. One Baltimore photographed the area on 7th November but could find only a very small camp. Nevertheless, while expert interpretation of the air photographs was awaited, 20 Baltimores bombed the site between 9th and 11th November without causing appreciable damage. It was then assessed that the camp was in fact much smaller than originally reported and warranted no further attack. More satisfactory targets from the viewpoint of the aircrews were allotted late in November when shipping and harbour installations at Cos and Rhodes (twice) were bombed, but even these centres of enemy resistance offered no real chance of spectacular success. Indeed the prevailing situation, in which the Germans had withdrawn from Greece but had left small tenacious garrisons holding Crete, Milos and the Dodecanese Islands, gave no real scope for medium-bomber operations. The enemy outposts were as effectively bypassed and contained as were those still holding out in the Bay of Biscay ports—incapable of offence and their capture no longer essential to main strategy and therefore not worth the expense of deliberate large-scale assault. No. 459 no longer had U-boats to hunt or major ships to attack and inevitably reverted to more routine duties of reconnaissance and indirect psychological pressure on enemy-held islands. Leaflets urging German troops to surrender were first dropped by the squadron over the main enemy centres in Crete on 19th November, but the campaign was soon extended to Milos, Rhodes, Cos and Leros.[9] This activity continued throughout December 1944 (21 sorties) and January 1945 (32 sorties), pamphlets in the Greek language giving encouragement to the civilian population being dropped as well as texts in German addressed to enemy troops.

During November Henderson transferred to No. 454 Squadron as commanding officer while Wing Commander Payne[1] took charge of No. 459.

[9] This task was surprisingly popular, especially among the navigators, who vied with each other in devising techniques to ensure that as many leaflets as possible fell in the correct areas. This "airmail" delivery to small enemy positions was naturally more difficult than general "nickelling" over large cities.

[1] W Cdr C. E. Payne, 164. 454 Sqn; comd 459 Sqn 1944-45, 172 Sqn RAF 1945. Regular air force offr; of Coburg, Vic; b. Corryong, Vic, 20 Feb 1911.

Other pilots, notably McHale, left during the winter months, having finished their operational tour. Nevertheless the unit remained fully-manned and ever ready to undertake any tasks given to it, only regretting, as every squadron in a quiet sector does, that the work load was not higher. Bombing was not entirely neglected and training was enthusiastically conducted by crews in the hope that No. 459 might follow its sister Baltimore unit to the active Italian front. December, however, brought only one bombing target—the harbour of Porto Mandracchio at Rhodes which was repeatedly attacked by a total of 65 aircraft during the month; considerable damage was done to small ships and wharf facilities. The same port together with enemy barracks at Coschinisu and trenches on Tilos (Piscopi) were bombed during January 1945, some attacks being timed to be complementary to naval shelling of the same areas. None of these activities was vital, however, and it was no surprise to the Australians when instructions were received on 7th February to move to Almaza pending transfer to another theatre. Some aircrews who had not completed operational tours were posted to Baltimore units in Desert Air Force, but the remainder, with the maintenance and administrative staffs, embarked on 25th February for the United Kingdom. As a unit with a long tradition of general reconnaissance and anti-submarine experience No. 459 was intended to reinforce Coastal Command. It was doubly disappointing therefore to the crews, on arrival in the United Kingdom, to learn that, because of imbalance created by postings before departure from Egypt, it was no longer practicable to re-train the unit to operate Leigh-light Wellingtons as intended. No. 459, after much success during the North African campaigns and such keenly applied effort in the eastern Mediterranean during 1944, disbanded on 10th April 1945—the only R.A.A.F. *Article XV* squadron to disband before the end of the war in Europe.

While the dwindling squadrons of A.H.Q. Eastern Mediterranean watched and patrolled the Aegean and Dodecanese Islands, Balkan Air Force, a new subsidiary to M.A.A.F., began in June 1944 to control or coordinate all air operations in support of commando (external) or partisan (internal) attacks on enemy forces in Greece, Albania and Yugoslavia. The surrender of Italy in September 1943 had not, as had been hoped, caused the Germans to abandon the Balkans; they had moved swiftly to secure the Dalmatian coast and islands previously garrisoned by Italian troops. The Germans then aimed at controlling the main communication routes with 18 combat divisions and up to 50 battalions of garrison troops, leaving the various partisan groups (which often warred among themselves) in control of large areas. Besides playing with advantage on the internal dissensions inherent in Balkan politics, the Germans also in May 1944 mounted a parachute and glider operation which drove Marshal Tito, the principal resistance leader, from his headquarters at Drvar in Bosnia. In these circumstances Balkan Air Force was formed to continue and expand the help in the form of air-dropped supplies and direct attack on enemy strongpoints and communications which had previously been

given on an *ad hoc* basis by various Allied agencies.[2] By December 1944 it controlled 15 fighter, 3 bomber and 6 transport squadrons and this strength remained fairly stable until the end of the war despite temporary accretions or diminutions. Balkan Air Force was also able to request the intervention of M.A.S.A.F. and M.A.T.A.F. forces for special major strikes. Partly because local knowledge was an important factor and partly because it could only be allotted units provided by other commands it was a motley collection of aircraft containing units of eight different nationalities.[3]

There was no R.A.A.F. squadron in B.A.F., but more than 150 Australians served with the transport, fighter and bomber units transferred from M.A.S.A.F., M.A.C.A.F., M.A.T.A.F. and A.H.Q. Eastern Mediterranean to this polyglot force. Approximately half the R.A.A.F. aircrew were with No. 148 Halifax Squadron,[4] based at Brindisi, for special supply-dropping duties over Poland, northern Italy and the Balkan countries. Operations over Yugoslavia were regarded as routine, the Halifaxes being able sometimes to fly by day because of the weak enemy air and radar resources there, but, as the partisans were constantly on the move and changing the designated dropping zones, there was much wasted effort. Many of the delivery points were in tiny valleys without prominent landmarks to aid either navigator or pilot. In all No. 148 Squadron contributed some 1,500 sorties (2,500 tons) to the impressive total of 11,500 sorties which delivered nearly 16,500 tons of supplies to Yugoslav partisans before May 1945.[5] Most of the cargo consisted of arms, demolition devices and ammunition, including ammunition for enemy types of guns held by the partisans, but during winter months boots, clothing, food and medical supplies especially to the more remote mountainous areas often took precedence. Similar loads but in very much smaller quantities were dropped over Albania, No. 148 losing four aircraft out of 95 flights because of the mountainous nature of the country. The squadron also made nearly 600 sorties to Greece before the British liberation force landed there during October 1944. Then when civil war broke out in Greece in December 1944 No. 148 dropped supplies to beleaguered British troops and continued to parachute food to prisoners of E.L.A.S.[6] while peace negotiations were carried out.

While these Balkan operations constituted its main task No. 148 flew 450 sorties to assist U.S.A.A.F. squadrons supplying Italian partisans in

[2] Allied military policy in the Balkans since 1942 had been to supply direct military aid and to furnish arms for indigenous liberation movements of all political tenets which were genuinely engaged in fighting the Germans. Air drops began in 1942 when a special-duties flight of Liberators operated from Fayid: by early 1944 two squadrons and one flight based at Brindisi were engaged in this work. Desert Air Force, MATAF and MASAF had all raided objectives in the Balkans but this help was less effective than it might have been as the operations lacked continuity and could not always be mounted at the most appropriate time, but only when other urgent tasks could be ignored.

[3] British, American, South African, Greek, Italian, Yugoslav and Polish units served throughout the period. A squadron of Russian C-47 transport aircraft was also under command for a time.

[4] This squadron always had a relatively high proportion of RAAF aircrew which was increased during October 1944 with the arrival of a number of Australians from No. 624 Squadron which disbanded after its task of supplying the Maquis in France was completed.

[5] Dakota units were often able to use emergency airfields temporarily held by partisans. They also delivered 2,500 people to these rebel airfields and evacuated nearly 19,000 wounded troops or civilians. These shuttle services had a greater percentage of success than the Halifax operations.

[6] Left-wing partisans.

the Po Valley. Twenty-five flights were made to Bulgaria, 18 to Hungary, 37 to Czechoslovakia and 31 to Austria without any significant losses. Attempts to operate over Poland, however, were costly and only partially successful. Political rather than purely military considerations gave special weight to plans to support Polish patriot groups after mid-1944 even although Marshal Rokossovsky's Russian armies were rolling through eastern Poland. It had already been found virtually impossible to fly support missions to Poland from bases in the United Kingdom, and, although Brindisi offered some geotactical advantages, it was still a formidable task to attempt a 1,700-mile round trip to an area far more rigidly controlled by the enemy than was the Balkan one.

Naturally the Polish commitment gave rise to the most epic and tragic operations of No. 148 and other squadrons asked to undertake the task.[7] The willingness of aircrew to face the formidable risks was early illustrated on 15th April 1944 when Pilot Officer Wells[8] of No. 267 Squadron navigated a Dakota from Brindisi to a nominated field of beetroots in the middle of enemy-occupied Poland at night and in poor visibility. After checking identification signals his pilot landed the aircraft on the stretch of soft cultivated ground, disembarked two Polish agents in exchange for five priority passengers and important Intelligence material. A hazardous take-off, with the aircraft wheels sinking and sliding in the soft earth, just enabled the Dakota to make a violent turn at stalling speed to avoid near-by trees and Wells then had to plot a tortuous five-hours journey back to the safety of Brindisi.

It was in August 1944, however, that the greatest efforts and sacrifices were required, when the Polish Home Army (predominantly right-wing politically) seized control of a large part of Warsaw. This rising, despite concurrent Allied break-throughs in Normandy and across the Vistula, was premature. German reinforcements pushed the Russians back from the gates of Warsaw leaving the Polish insurgents trapped within the city without any source of supplies except by air. Neither Russian nor American air forces, heavily committed elsewhere, were available for this task and it was left to the Polish flight and No. 148 together with two long-range units (Nos. 178 R.A.F. and 31 S.A.A.F. Squadrons) of No. 205 Group to give heroic but inadequate support. In all 217 sorties were attempted of which only 104 were successful before the revolt was suppressed late in September. Thirty-two aircraft (14 per cent) were lost, mostly during the intensive period of 17 nights' effort between 8th-9th August and 27th-28th August when the ground situation might still have been retrieved by a new Russian advance.[9] One Australian navigator of No. 148, Pilot Officer Wilson,[1] made four trips to Poland in this phase, flying twice to Warsaw,

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[7] No. 1586 (Polish) Flight—later No. 301 (Polish) Squadron—sent to Brindisi specifically for this task flew 342 sorties; No. 148 flew 210, No. 205 Group 64 and No. 267 Squadron 3.

[8] F-O J. A. Wells, 407922; 267 Sqn RAF. Public servant; of Adelaide; b. Millicent, SA, 6 Aug 1917.

[9] The Russian armies, having failed to reach Warsaw in their first rush, held a line along the Vistula and attacked southwards in Rumania instead of westward through Poland.

[1] F-O W. H. Wilson, 413704. 624 and 148 Sqns RAF. Bank clerk; of Taree, NSW; b. Maryborough, Qld, 20 Mar 1919.

once to a dropping zone near the capital and once to an area 100 miles to the south. His contemporary comments on these tasks were as follows:

> The trips were fairly difficult from a navigator's point of view, for we flew solely by pinpointing. There were some rather heavy flak areas on the route but we had our track laid down carefully to avoid them. . . . They were pretty wearing trips. It wasn't an easy task getting there in the first place, and once having arrived and made our drop, it was not a cheerful thought that home, breakfast and bed were still five hours away.
>
> On my first trip to Warsaw we flew 800 feet above the city. There was an odd bit of flak coming up but none of it hit us. We made one run, getting rid of part of our load, then we went round again and tipped out the rest. . . . The second time we went to Warsaw—it was the third visit by the squadron—we expected trouble and we found it. We had been told that the city was ablaze almost from end to end. It was an easy job finding Warsaw for we could see the fires while 60 miles away. Crossing the city we flew 400 feet above the rooftops and as we looked down it was like peering into the middle of a roaring furnace. . . . The general dropping area was three-quarters of a mile square . . . but we had been briefed to drop in one particular street. . . . Flak was coming up but for a while we were just feeling an occasional thump. . . . Then a few pieces of shrapnel came through the hole where the dispatcher tips out the supplies. The compass . . . then the intercommunication system became unserviceable . . . none of us knew what was happening in other parts of the aircraft. But we dropped our stuff—we learned later that it fell in the right spot, and we got back safely.

Flying Officers Fletcher[2] and Raw[3] and Warrant Officers Baxter[4] and Jenkinson,[5] all of No. 178 Squadron, each made one or more successful delivery flights to Poland in this period. Baxter was killed on 14th-15th August during his second trip in successive nights. Squadron Leader Liversidge,[6] a flight commander of No. 178, was also killed on the 16th-17th when the Liberator he was navigating was shot down by an enemy fighter near Cracow while returning from the crew's second delivery flight. From this aircraft Flight Lieutenant Hammet,[7] although wounded by bullets in the arms, legs, hand and left side, safely parachuted and hid with a partisan group until the area was occupied by Russian forces in January 1945. Other Australians with Nos. 178 R.A.F. and 31 S.A.A.F. Squadrons took a lesser part in the short but intensive period in mid-August when No. 205 Group, from the more distant base at Foggia and without tactical training in special duties, attempted to operate over a very long distance in weather so adverse that only political necessity rather than direct military issues could justify the flights. It was indeed the boost to the morale of General Bor-Komorowski's beleaguered patriots in Warsaw rather than the 123 tons of supplies actually delivered which was the

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[2] F-Lt E. J. Fletcher, DFC, 409138; 178 Sqn RAF. Farmer; of Kerang, Vic; b. London, England, 13 Sep 1917.

[3] W Cdr P. F. Raw, DFC, AFC, 409445. 178 Sqn RAF; comd 205 Gp Comm Sqn 1945. Electrician; of Caulfield, Vic; b. Carnegie, Vic, 5 Jun 1922.

[4] W-O M. A. Baxter, 416821. 37 and 178 Sqns RAF. Orchardist; of Edenhope, Vic; b. Wallacedale, Vic, 17 Oct 1920. Killed in action 14 Aug 1944.

[5] F-O H. K. Jenkinson, 415991. 70 and 178 Sqns RAF. Tractor driver; of Nyabing, WA; b. Kalgoorlie, WA, 17 Jul 1915.

[6] Sqn Ldr J. P. Liversidge, 401092; 178 Sqn RAF. Schoolteacher; of Pennant Hills, NSW; b. South Melbourne, 12 Jul 1913. Killed in action 17 Aug 1944.

[7] F-Lt A. H. Hammet, DFM, 400754; 178 Sqn RAF. Chemist apprentice; of Red Cliffs, Vic; b. Melbourne, 24 Jul 1921.

most significant result of these operations. After the surrender of the Polish forces in Warsaw effort declined to a nominal level of 15 flights a month by No. 148 Squadron and No. 301 (Polish) Squadron until the requirement ceased in January 1945 when Russian armies swept rapidly through Poland.

Apart from its specialised task of delivering arms and other supplies to partisan groups Balkan Air Force interpreted its directive to "contain and destroy as many enemy forces as possible in the Balkans and Greece" as requiring air support for the Yugoslav Army of National Liberation and in a more general sense as requiring attacks on road, rail and sea communications. Throughout this period the Army of National Liberation was primarily a loose aggregation of swiftly-moving guerilla groups. Some villages changed hands perhaps 50 times and much of the fighting was at night when it was difficult to supply air support from bases in Italy. Nevertheless fighter-bomber and bomber attacks were often decisive in major partisan raids or in defence of groups hard pressed by the Germans. But for the reluctance of the partisans themselves to provide proper facilities for Allied Intelligence liaison officers much more timely and weighty support might have been possible in the kaleidoscope of ground actions.

Attacks on enemy communications were easier to plan and to maintain, especially when the Germans moved in force. Thus during the German withdrawal from Greece in September and October 1944, the flight of *XXI Mountain Corps* from Montenegro during November and December 1944, or the enemy withdrawal from its Sarajevo salient in April 1945, ample targets existed for all units of Balkan Air Force. In between major enemy troop movements it was soon found that the roads and railways could be kept virtually traffic-free during daylight hours if patrolled systematically by fighters and fighter-bombers: any attempt by the Germans to use these facilities at night gave excellent opportunities for partisan ambushes. Traffic centres, especially marshalling yards, bridges and rail tracks, were periodically attacked by light bombers and rocket-projectile Beaufighters to maintain their depressed condition after the shattering blows of M.A.S.A.F. and M.A.T.A.F. during operation "Ratweek" in September 1944. These static targets were also the last-resort objectives of the roaming fighter-bombers and the general effect was that in the Balkans, amidst a hostile and highly sabotage-conscious population, the Germans were unable to exploit the true traffic potential of the main lines of communication. At sea or in ports rocket-projectile-carrying Hurricanes and Beaufighters joined with Coastal Air Force and naval units in imposing an almost complete ban on enemy movements. From November 1944 onwards a campaign was necessary to defeat midget naval units such as explosive motor-boats operating from Pola, while mine-spotting duties to clear channels leading to newly-captured harbours were also given to Balkan Air Force.

It was also necessary for the light bombers and fighters to intervene in the civil war in Greece. On all these varied tasks during the 11 months of its existence Balkan Air Force recorded nearly 23,000 sorties, varying

from less than 1,000 flights during the bitter weather of January to a peak effort of 3,700 flights during April, when all fronts were on the move and targets were plentiful. Results were difficult to itemise although sifted claims were finally made that 69 enemy aircraft, 1,742 road vehicles, 313 locomotives, 978 rail waggons, 10 bridges, 57 buildings and 183 ships were destroyed and larger numbers of each category damaged. The true value of B.A.F. effort, however, was that the German Air Force was almost entirely prevented from operating and enemy troops so harassed by air reconnaissance and attack during daylight that the partisans frequently held local tactical superiority. Nor did this type or level of one-sided air activity give much opportunity for individual pre-eminence: it was essentially a matter of teamwork by efficient though diversified units. Australians were most active with the single-engined ground-attack squadrons of No. 283 Wing, where Squadron Leaders Te Kloot[8] and Edmondson[9] were successive commanding officers of No. 249 Squadron and Flight Lieutenant Gamble[1] was a flight commander of No. 213 Squadron. The only combat unit on which served a significant number of R.A.A.F. aircrew was No. 221 (A.S.V. Wellington) Squadron which transferred from the Coastal Air Force in October 1944 for shipping reconnaissance and attack duties.

As Balkan Air Force waxed so the strength of Mediterranean Coastal Air Force declined, because enemy shipping activity was already restricted almost entirely to the Adriatic. After its successful part in the invasion of southern France Coastal Air Force shed most of its fighter units, some to B.A.F. and some to the United Kingdom; two general reconnaissance squadrons transferred to Coastal Command and another to B.A.F. By May 1945 only air-sea rescue, minesweeping and a few fighter units (mostly French and Italian squadrons) remained under command. For some months No. 458 Squadron remained with M.A.C.A.F., but when this unit was posted to Gibraltar in January 1945 to counter an expected resurgence of U-boat activity there, Australian representation in this command almost disappeared.

On leaving Alghero early in September 1944 for duty in the Adriatic No. 458 found, as had frequently happened in past years, that it was required to operate detached flights at two bases. The main party moved to Foggia (No. 323 Wing) but found its quarters and facilities rather cramped although it was possible to begin operations on 7th-8th September, 10 days before the arrival of the full maintenance party. Their journey had been badly handicapped by inability to secure shipping space to the mainland and then had been troubled by decrepit transport vehicles to make the move between Naples and Foggia. The detachment of six Wellingtons sent to Falconara (Ancona) under command of No. 287

[8] Sqn Ldr J. Te Kloot, DSO, 414276. 229 and 185 Sqns RAF; comd 249 Sqn RAF 1944. Stockman; of Cunnamulla, Qld; b. Orange, NSW, 28 Sep 1917.

[9] Sqn Ldr C. E. Edmondson, DSO, 402326. 451 Sqn, 274, 1437 Flt, 260 and 225 Sqns RAF, 450 Sqn, 249 Sqn RAF; comd 249 Sqn RAF 1944-45. Regular soldier; of Wodonga, Vic; b. Traralgon, Vic, 16 Nov 1915.

[1] F-Lt F. M. Gamble, DFC, 409202. 225 and 213 Sqns RAF. Farmer; of Barfold, Vic; b. Kyneton, Vic, 24 Oct 1920.

Wing began operations eventfully on 14th-15th September when two aircraft were sent out on independent coastal searches for shipping between Ravenna and the Gulf of Trieste. Pilot Officer Priest[2] sighted three vessels and at 2 a.m. attacked a 2,000-ton merchant ship with eleven 250-lb bombs, one of which scored a direct hit and set the ship on fire. The second Wellington intercepted Priest's sighting report and reached the position just south of the mouth of the Po to find the stricken ship emitting black smoke. Just as this second crew released flares in preparation for attack there was a large explosion and smoke rose to 8,000 feet; to ensure that the vessel did sink bombs were dropped which seemed to increase the fire.

Despite the difficulties of settling in at Foggia and Falconara 45 operational sorties, all in the northern Adriatic, were flown during September, but without further positive action. It would have been preferable to operate all aircraft from Falconara, both to save time lost in transit to the operational area and also give a much swifter reaction against high-speed enemy naval craft and midget submarines, thought to be preparing for operations from Trieste and Pola.[3] Falconara, however, had only a turf runway which very quickly became unserviceable when rain set in. There was a considerable quantity of shrapnel and flint in the runways which worked to the surface in wet conditions, ruining aircraft tyres and making unsafe the use of fully-laden aircraft. Consequently during October, when the taxi-strips became quagmires, only six sorties were flown from Falconara although 55 were possible from Foggia. Nightly searches, mainly in the Gulf of Venice, provided no major shipping targets but alternative land targets were bombed. Three Wellingtons were also temporarily transferred to Vallon in southern France during October to cooperate with the American cruisers *Brooklyn* and *Philadelphia,* which were shelling specific targets ashore in the enemy controlled Gulf of Genoa.

One advantage which the Australians enjoyed during their shipping hunts in the Adriatic was very accurate Intelligence from naval sources and from a radar watch kept by the advanced air sector operations room, information being relayed to the Wellingtons while they were on patrol. This close liaison was necessary as a safety measure on occasions when Allied naval forces made sweeps in the area, but it also provided opportunities for intercepting the fastest and most fleeting enemy targets. A typical example of controlled interception came just before midnight on 20th October when a R.A.A.F. Wellington and a Beaufighter of No. 600 Squadron were dispatched from Falconara to investigate suspicious traces on the radar watch screen. The controller had both the aircraft and the surface vessels on his display tube at the same time and was able to vector the Wellington and Beaufighter into suitable positions before illuminating flares dropped by the R.A.A.F. crew permitted the Beaufighter pilot to sight and attack with cannon three E-boats north of Ancona.

[2] F-O M. R. Priest, DFC, 416363; 458 Sqn, 216 Sqn RAF. Insurance clerk; of Stirling West, SA; b. Glossop, SA, 17 Apr 1922.

[3] Midget submarines and motor-boats were concurrently operating with some embarrassing success in the Scheldt estuary. The northern Adriatic offered considerable tactical scope for similar raids.

Another Wellington already on patrol was diverted to the scene and this also straddled the E-boats with bombs.

During November 1944 Falconara could sustain only 19 sorties as against 51 made from Foggia. By this time enemy shipping activity had markedly declined, even at night and in bad weather. Apart from desultory bombing of land objectives, sometimes through cloud with the aid of radar, No. 458 had only one success. This came during the night of 22nd-23rd November when Flight Sergeant Whittem[4] illuminated and bombed a group of small naval vessels escorting a laden coastal tanker on a northerly course between Maestra Point and Cape Salvore. Beaufighters sent out next morning to follow up this attack found the tanker, abandoned by its crew, on fire and sinking. Similar armed reconnaissances by up to six Wellingtons on each night of favourable weather continued during December to scour the northern Adriatic for enemy naval or supply shipping, but without result. During January 1945 a detached force of eight Wellingtons operated from Rosignano (under control of No. 338 Wing at Leghorn) to patrol the Gulf of Genoa on the west coast while other crews from Foggia maintained the Adriatic patrols. Spezia, Genoa, Sestri Levante and Moneglia were all bombed during this period but no shipping was found at sea.

January 1945 began with very wet weather in northern Italy, creating miserable working conditions for the ground maintenance crews, especially at Rosignano. At times the dispersal areas were so boggy that Wellingtons had to be towed into position using winches and land anchors. It was often too muddy to get bomb trolleys beneath the aircraft so that armourers were forced to manhandle bombs into position. It was with some satisfaction therefore that the Australians learnt on 17th January that they were to cease anti-shipping operations and transfer to Gibraltar for anti-submarine duties. To the ground crews this offered relief from mud and to the aircrews the possibility of greater opportunities than had their recent negative patrols. Nor at first did Gibraltar disappoint these hopes. The advance party and aircraft which arrived on 27th January found good food and billets, excellent working conditions, and the challenge of the obvious presence in the area of at least one U-boat. This had succeeded in torpedoing three ships in the month without itself being seen, and therefore was presumably equipped with *Schnorkel*. The maintenance crews set to work happily and the Wellingtons soon emerged from their exterior coating of glutinous mud, while the aircrews began intensive training in low-level bombing against towed splash targets, and in Leigh-light techniques.

Operations from the new base began on 10th-11th February when three Wellingtons carried out anti-U-boat patrols to the west of the strait and the same scale of effort continued until the 17th. On that day a U-boat, which had eluded both day and night air and naval searches, torpedoed an American freighter in position north of Tangier at 11 a.m.

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[4] F-O J. H. Whittem, 424338; 458 Sqn. Veterinary surgeon; of Sydney; b. Waverley, NSW, 6 Nov 1921.

and almost immediately afterwards hit the British tanker *Regent Lion* (9,500 tons), sailing in convoy. This bold enemy stroke precipitated a hunt requiring a maximum air effort from No. 22 Squadron S.A.A.F. (Venturas) by day and by No. 458 at night in an ever-widening area of probability radiating from the scene of the attacks. Although no sightings were made from the air, the constant pressure of air patrols so impeded the freedom of action of the U-boat,[5] which was harried by naval depth-charge attacks, that she surfaced in desperation on the fifth day of the hunt and was sunk in position 60 miles south-east of Cape St Vincent to the south of Portugal by gunfire from H.M.S's *Recruit, Evadne* and *Pincher.*

The intensive if oblique contribution of No. 458 to the sinking of *U300* accounted for the creditable tally of 55 operations conducted in the two and a half weeks of February during which the squadron was back in the line. A lull inevitably followed as there was no evidence of the presence of a second U-boat and it would inevitably take some time for a replacement to travel submerged from Norway. Convoy escorts and independent sweeps continued throughout March but were drastically reduced during April when only five operational sorties, all uneventful, were attempted. There were no alternative tasks which could be conducted from Gibraltar, but No. 458 could not easily be transferred to either Italy or the United Kingdom for other duties because of the risk that other U-boats might arrive in the area. The Australians remained poised but virtually inactive as an essential insurance measure. The war ended for No. 458 on a minor note of resumed flying mostly in connection with the search for surrendering U-boats after 8th May; by the end of that month it was finally withdrawn from operations and began to disband.

As with A.H.Q.E.M. and M.A.C.A.F. the number of Australians serving with M.A.S.A.F. declined during the last year of the war, falling from 212 in June 1944 to 47 on 10th May 1945 when No. 205 Group began to disgorge its Australian aircrews.[6] There was no R.A.A.F. unit in No. 205 Group and therefore no planned replacement of Australian crews from operational training units. The decline in numbers was caused by steady casualties, the re-transfer of Nos. 142 and 150 Squadrons to Bomber Command in November 1944, and the completion of operational tours by individual airmen. In this period No. 205 Group units all converted from Wellington to Liberator aircraft (which were more compatible with the vastly greater U.S.A.A.F. complement of M.A.S.A.F.) and this also had some incidental effect on Australian representation. Despite their falling numbers the Australians with No. 205 Group had the satisfaction of joining, not without personal distinction, in a continuous offensive which did not slacken until the end of the war.

During June 1944 No. 205 Group operated on 22 nights, dropping 2,000 tons of bombs and 20,000,000 leaflets in 1,600 sorties for the loss

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[5] *U300* a 500-ton VIIC-type equipped with *Schnorkel.*

[6] Approximately 460 RAAF aircrew served with No. 205 Group during the MASAF period (15 Dec 1943-10 May 1945), some of whom had already served during the NASAF period (18 Feb 1943-15 Dec 1943).

of 34 aircraft. At the beginning of the month the main effort was still against road communications in the battle area but oil targets then received preference, very good results being achieved against refineries and storage depots at Giurgiu, Brod Bosanski and Almasfuzito, a suburb of Szony. Six attacks were also made on railway targets and two on enemy airfields at Karlovo and Fuersbrunn to depress German fighter potential against the ever-increasing American daylight bomber raids in Rumania and south Germany. Twenty of the 54 aircraft which successfully bombed Brod Bosanski on 10th-11th June when at least six oil storage tanks were destroyed were piloted by Australians, as were 33 of the 88 aircraft which bombed Munich on the 13th-14th. In No. 70 Squadron alone Pilot Officer Futcher,[7] Warrant Officer Marstin[8] and Flight Sergeants Jenkinson and Fallon[9] made daring accurate attacks early in the month which were duplicated by others later in a general pattern of well-applied airmanship. Oil targets retained their priority during July, being attacked on nine nights, while raids on marshalling yards at Milan (twice), Brescia and Verona put further strain on the enemy's already badly-damaged communications. A repeat attack against Fuersbrunn airfield on 6th-7th July was successful in that 50 enemy fighters were grounded by cratering and 19 were totally destroyed, but the cost was high, 10 Wellingtons, 2 Liberators and one Halifax failing to return out of the force of 57 aircraft dispatched.[1]

On 1st-2nd July and again on 30th-31st July, when moonlight conditions were favourable, large numbers of mines were laid in the River Danube, mainly around Giurgiu, Bazias and Turnu Severin. This campaign to disrupt the flow of Rumanian oil to Germany had begun in April 1944 and had already caused a marked enemy reaction in the form of searchlight, gun and fighter aircraft defences. Intelligence reports (amply justified by official records after Rumania capitulated) gave early indications that one tug, tanker or barge was sunk for every five mines laid, despite all enemy attempts to sweep the river with aircraft and ships specially equipped to detect both magnetic and acoustic mines. Moreover considerable delays, especially in regard to Rumanian-manned vessels, were caused to traffic after each operation by No. 205 Group, so that by August priority oil traffic on the Danube had been reduced by 60 per cent while other movements were even more seriously affected.

In this context the occasionally heavy losses of aircraft attacking strongly defended vital choke-points were justified in the minds of both planners and aircrew. On 1st-2nd July Nos. 40 and 104 lost six of their 22 Wellingtons,

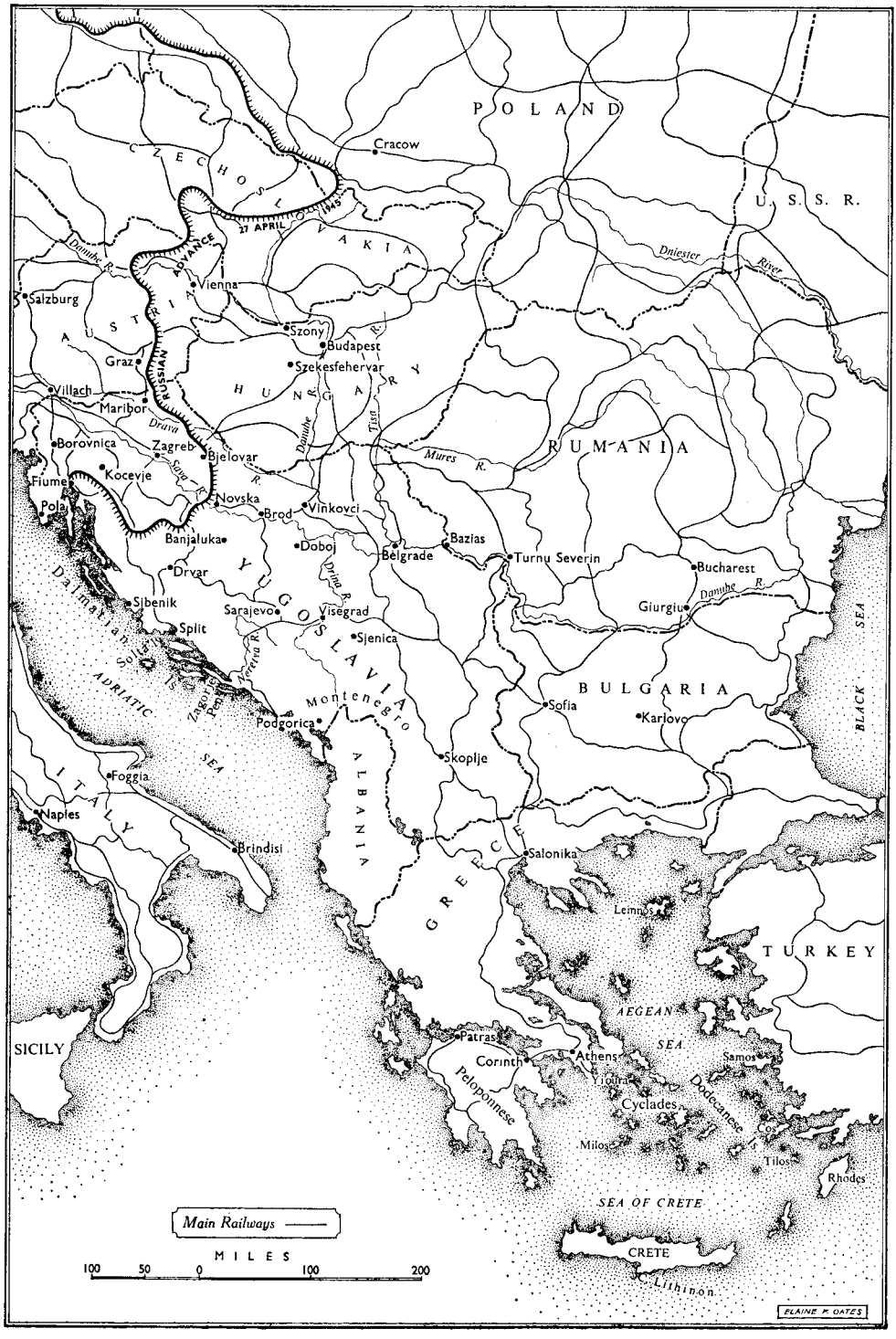
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[7] F-O N. R. Futcher, 13003; 70 Sqn RAF. Commercial traveller; of Brighton, Vic; b. Brighton, 8 Sep 1914.

[8] W-O B. E. Marstin, 414498; 70 Sqn RAF. Industrial chemist's assistant; of Rockhampton, Qld; b. Rockhampton, 23 Aug 1921. Killed in action 12 Jun 1944.

[9] F-Sgt L. Fallon, 417355; 70 Sqn RAF. Jeweller's assistant; of North Adelaide; b. Adelaide, 10 Nov 1919. Killed in action 29 Jun 1944.

[1] Australian pilots missing on this raid were W-O's R. B. Flegg and G. J. Custance (No. 70 Sqn), W-O J. A. McDonald (No. 104 Sqn) and P-O R. T. Collins and F-O J. A. Hall (No. 40 Sqn). During this series of raids Custance, in a remarkable feat of courage and airmanship, brought back from Budapest—a distance of 500 miles—a Wellington with 10 feet missing from the port wing and landed safely.


POLAND
U. S. S. R.
CZECHOSLOVAKIA
27 APRIL LINE
RUSSIAN ADVANCE
Cracow
Vienna
Salzburg
AUSTRIA
Graz
Villach
Maribor
Szony
Budapest
Szekesfehervar
HUNGARY
Danube R.
Drava R.
Sava R.
Tisza R.
Mures R.
Dniester River
RUMANIA
Borovnica
Zagreb
Bjelovar
Kocevje
Fiume
Pola
Novska
Brod
Vinkovci
Banjaluka
Doboj
Belgrade
Bazias
Turnu Severin
Bucharest
Giurgiu
Drvar
Sibenik
Sarajevo
Visegrad
Drina R.
Neretva R.
Split
Sjenica
YUGOSLAVIA
Dalmatian Islands
ADRIATIC SEA
Zagora Pen.
Montenegro
Podgorica
Skoplje
ALBANIA
BULGARIA
Sofia
Karlovo
BLACK SEA
Foggia
Naples
ITALY
Brindisi
GREECE
Salonika
Lemnos
TURKEY
AEGEAN SEA
SICILY
Patras
Corinth
Athens
Samos
Ionian
Peloponnese
Cyclades
Dodecanese
Milos
Cos
Tilos
Rhodes
SEA OF CRETE
CRETE
Lithinon
Main Railways
MILES
100 50 0 100 200
ELAINE M. OATES

The Balkans



(*Air Ministry*)

Venice under attack by Nos. 3 and 450 Squadrons on 21st March 1945.



(*R.A.A.F.*)

Major damage was inflicted by Allied bombing to the docks and port installations at Leghorn on the north-west coast of Italy. The completion of the vessel under construction on the left was made impossible because of damage to the docks and moles surrounding her.



(*R.A.A.F.*)

Ruined Kleve photographed from a R.A.F. Auster aircraft shortly before its capture in February 1945.



(*R.A.A.F.*)

Allied amphibious tanks crossing the Rhine, March 1945.

but 55 other aircraft the same night laid a record number of mines elsewhere in the Danube without loss. Crews vied with each other to attain the high standards of navigation and low-level flying required for this task and there were many examples of individual fortitude, such as on 1st-2nd July when Flying Officer Souter[2] of No. 104, although seriously wounded with arm and leg fractures, refused to abandon his navigation duties and continued to plot accurate courses back to Foggia. Among Australians who showed special aptitude for minelaying were Flying Officer Lewis[3] of No. 37, Flight Sergeant Patten[4] of No. 40, Flying Officer Murphy,[5] Pilot Officer Pile,[6] Warrant Officers Trollope[7] and Cameron[8] of No. 104 and Pilot Officer Mattingley[9] of No. 150 Squadron.

Supplementary mining operations in the Danube were continued during August but the main effort of the R.A.F. element of M.A.S.A.F. up to the 23rd was against marshalling yards (3), airfields (3), oil refineries (3), ports (2), and an armoured-vehicle assembly plant—these targets being spread over France, Italy, Austria and Rumania. As described above two squadrons were also employed in carrying supplies to Warsaw while a record number of 30,000,000 leaflets were dropped over six countries on 19 special nickelling missions. After 23rd August effort was switched to tactical targets in support of the Eighth Army's renewed drive against Rimini; railway centres at Bologna, Ferrara and Ravenna were heavily bombed, and three attacks were made on an enemy troop concentration area at Pesaro, some eight miles behind the front line. Casualties amounting to 54 aircraft out of 1,369 dispatched included the abnormal losses over Warsaw, and reflected the more difficult nature of night-bomber operations in this theatre compared with those of Bomber Command, in which a much larger and more flexible force held obvious advantages in terms of aircraft types, radar, pathfinder assistance and diversionary techniques. Losses fell significantly during September to 20 out of 1,500 bombers sent out on the 18 nights when operations were practicable. This reduction was mainly due to the shortening range of targets, which were mostly rail marshalling yards and troop concentrations behind the Italian front or relatively soft targets such as airfields near Athens, the Salonika port area and the Borovnica railway viaduct.

During October 1944 No. 205 Group could operate on 13 nights only because of long spells of bad weather at the beginning and end of the

[2] F-Lt M. Souter, DFC, 409762; 104 Sqn RAF. Bank clerk; of Essendon, Vic; b. Essendon, 7 Apr 1917.

[3] F-Lt R. W. Lewis, DFC, 418438; 37 Sqn RAF. Woolclasser; of Melbourne; b. Sydney, 11 Oct 1910.

[4] W-O A. R. Patten, DFM, 422683; 40 Sqn RAF. Farmer; of Arcadia, NSW; b. Langwarrin, Vic, 24 Oct 1922.

[5] F-Lt J. G. Murphy, DFC, 423307; 104 Sqn RAF. Hotel-keeper; of Balmain, NSW; b. Inverell, NSW, 14 May 1911.

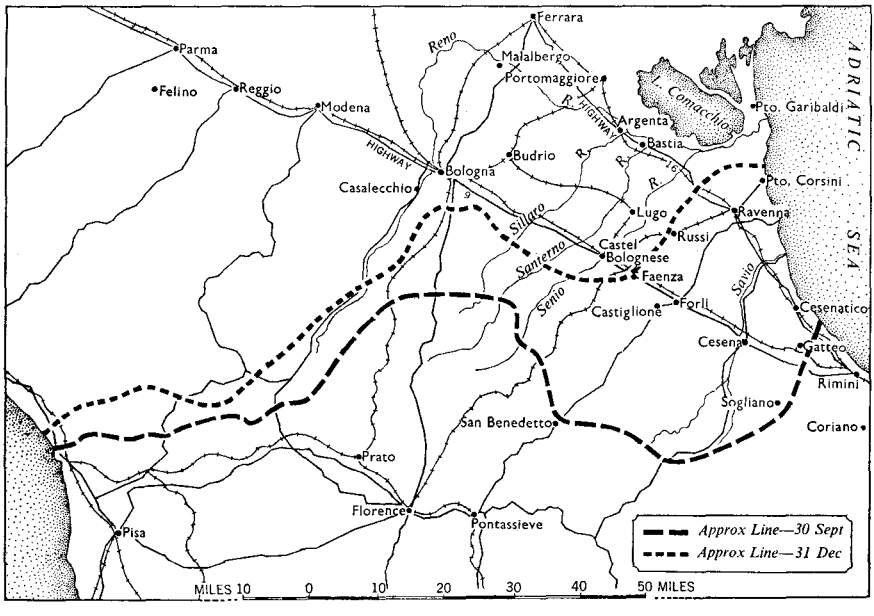
[6] F-Lt P. J. T. Pile, DFC, 420416. 104 and 614 Sqns RAF. Analytical chemist; of Glebe Point, NSW; b. Narara, NSW, 13 Nov 1922. Died 11 Jun 1960.

[7] F-O K. S. Trollope, AFC, DFM, 410183; 104 Sqn RAF. Clerk; of Malvern, Vic; b. Williamstown, Vic, 21 Apr 1917.

[8] P-O J. A. Cameron, DFM, 409977; 104 Sqn RAF. Storeman; of East Melbourne; b. Coburg, Vic, 27 Sep 1922.

[9] F-O E. J. Mattingley, DFC, 409931; 150 Sqn RAF. Wool sorter; of Glen Iris, Vic; b. Kew, Vic, 5 Jul 1916.

month. Targets in Italy were a pontoon bridge near San Benedetto (4th-5th October) and marshalling yards at Verona (10th-11th and 11th-12th), Bronzolo (12th-13th) and Trieste (15th-16th). In the Balkans other marshalling yards at Szekesfehervar (13th-14th), Zagreb (16th-17th) and Vinkovci (17th-18th) were heavily damaged and moderate success achieved at Maribor (21st-22nd). By this time the Fifth Army offensive to capture Bologna had been halted by stubborn enemy defences and by logistic weakness and, as the Italian battlefront settled down to an uneasy stalemate, it was natural for No. 205 Group to apply its main



strength to Greece and Yugoslavia to harry the Germans retreating northwards. Allied landings in Greece and Yugoslavia together with Russian advances in the north-east forced the enemy increasingly to employ poor inland roads, all of which were subject to attack by partisans. Accordingly on 26th October priority was given to tasks nominated by the A.O.C. Balkan Air Force, who requested that supply dropping both by day and night should be the main task, with daylight attacks against isolated communication targets in Yugoslavia as second priority.

This campaign began on the 26th when only the Liberators operated in daylight, but the whole group was sent out on the 29th to drop more than 500 containers in two areas nominated by the partisans. During November, despite 12 days of inaction due to weather, the Liberators and Wellingtons flew 1,631 sorties to drop 6,000 containers and 2,500 tons of bombs. The most notable supply-dropping feat was a series of four operations during 4th and 5th November which entailed crews flying

double sorties on each day for a total of 292 sorties. The 350 tons of supplies delivered were estimated as sufficient to arm 16,000 partisans.[1] Attacks against roads and bridges reached a peak between 18th and 20th November when 1,030 tons of bombs were dropped, mainly near Visegrad, Sjenica and Podgorica. Other important attacks were against Udine and Vicenza airfields (17th-18th) to crater them and immobilise fighters in advance of a full-weight strafing and fragmentation attack by the U.S.A.A.F.

Further supply-dropping missions to Yugoslavia were made on six days and five nights in December 1944 when a steady effort was required, specially from the Liberator squadrons, to ferry men and ammunition to Greece after civil disturbances, fomented by extremist E.L.A.S. partisans, broke out in Athens. Bombing was on a reduced scale, largely because of a failure to achieve agreement with the Russians concerning a practical bomb-line. Very effective attacks were made, however, between 15th and 21st December against the German *XXI Mountain Corps* retreating north-eastwards from Podgorica. Night bombing attacks were also mounted against marshalling yards at Sarajevo and rail bridges at Susegana and Casarsa. No fewer than 22 days during January 1945 were unfit for large-scale operations so that only 606 effective sorties were flown to drop 660 tons of bombs and 2,600 supply containers. This disappointing start to the year, relieved only by effective strikes against the Udine marshalling yards and bridges at Latisana and Doboj, was followed in February by eight night-bombing attacks against rail facilities at Graz, Udine, Padua, Brescia and Verona (attacked four times) and two highly successful daylight raids against the Fiume naval fitting-out basin and the Pola naval armaments depot. Marshalling yards in Italy, Austria and Yugloslavia were again attacked on 17 occasions during March 1945 and the Monfalcone shipyards were heavily damaged, but only one supply-dropping mission was conducted.

The final battle for the destruction of enemy forces in north Italy began with an attack launched by the Eighth Army from the River Senio line late on 9th April. No. 205 Group which had begun the month with night attacks against marshalling yards at Trento (2nd-3rd and 8th-9th), Novska (3rd-4th) and Brescia (4th-5th) were now required to act as airborne artillery to subdue enemy fortified positions along the Santerno River. On 9th-10th April 95 aircraft were sent out to bomb areas "Pig" and "Whistle", only 2,000 yards ahead of advancing British troops, who marked the targets with red star shells as a primary indication for the aerial path-finders. Bombing, especially in area "Pig", was very good and the Allied forces were able next day to force a bridgehead across the river against disorganised defences. On 11th-12th April a concentration of enemy troops, defences and dumps at Bastia, where Highway 16 crosses the River Reno, was similarly attacked. The towns of Argenta and Portomaggiore, key points dominating the vital Argenta supply (or withdrawal)

[1] Squadron records show that 45 of the 292 aircraft were piloted by Australians but that only 34 other RAAF crewmen were engaged in this series. This reflects the waning numerical representation of Australians in No. 205 Group.

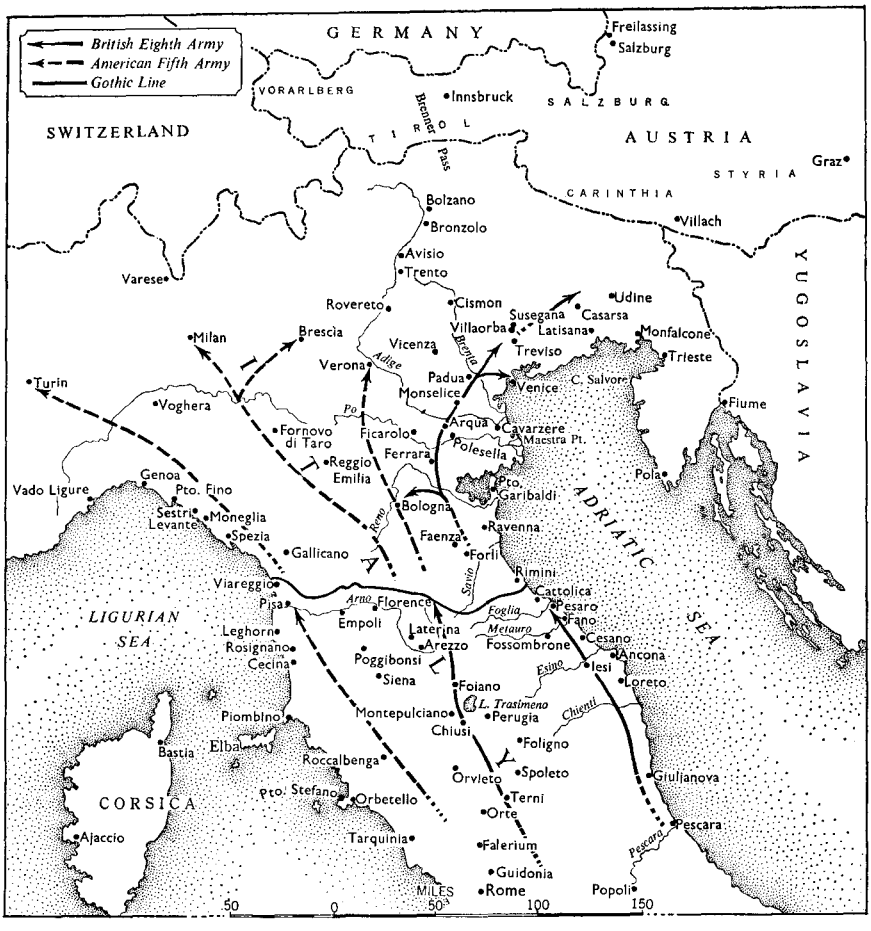
route, were bombed on successive nights (12th-13th and 13th-14th). On 14th April the Fifth Army opened an attack to bypass Bologna and on the 16th-17th No. 205 Group was given the task of destroying Casalecchio, a road and river communications centre three miles south-west of Bologna. Portomaggiore was attacked again on 17th-18th April; on the 19th-20th Malalbergo, 15 miles north of Bologna and used by the enemy as a lateral communications centre for troops facing the Eighth Army and as a normal rear communications route to the Fifth Army front, was bombed with great precision. From this time onwards the fighting front began to move so rapidly that heavy bombers were not called upon again; minor static targets were left to the medium, light and fighter-bombers.

The heavies, which had interspersed their army-cooperation tasks with attacks on marshalling yards at Innsbruck (10th-11th) and Villach (15th-16th), began to pound choke-points to the rear of the battle. A rail and road bridge at Verona was attacked on 20th-21st and 23rd-24th April, although attacks ordered against pontoon bridges at Ficarolo and Polesella on the enemy escape route northwards had to be abandoned because of weather. Southern approaches to the Brenner Pass were under constant attack at this time as the German defences, so strongly held throughout the bitter winter, began to disintegrate. Sweeping Allied successes on the north-European battlefields and the much publicised intention of the Germans to conduct a last-ditch stand in the alpine "Redoubt" led on the 25th-26th to a maximum effort by No. 205 Group against marshalling yards at Freilassing, about four miles north-west of Salzburg. All lines were cut, approximately 300 pieces of rolling-stock destroyed, and the whole area was cratered.

This success was to be the last raid of No. 205 Group for, on 29th April, the German General Commanding (South-West Command) agreed to surrender unconditionally to Field Marshal Alexander. The area covered comprised Italy up to the Isonzo River, about 10 miles north-west of Trieste, the provinces of Vorarlberg, Tirol, Salzburg and parts of Styria and Carinthia in Austria. A confused period followed during the first week in May while this and other surrender agreements were being carried out, and it was impossible to use the strategic bomber force. On 7th May No. 205 Group turned entirely to transport and supply duties, both to sustain the Eighth Army as it took over heavily-damaged communications in former enemy-held areas, and to ferry more than 1,200 released Allied prisoners of war to the United Kingdom, and more than 800 South Africans to Cairo.

Despite the sound and often notable work done by individual airmen in the eastern Mediterranean and in the British elements of M.A.C.A.F. and M.A.S.A.F., prime Australian interest lay with tactical operations connected with the ground battles. Even in M.A.T.A.F., however, this contribution was numerically small, being confined to the two veteran R.A.A.F. fighter-bomber squadrons (Nos. 3 and 450) and a light-bomber squadron (No. 454 R.A.A.F.) together with an average of 60 Australians scattered

among other units.[2] During the last year of the war there were never fewer than 90 squadrons in M.A.T.A.F. Approximately 50 squadrons at any one time were units of the U.S.A.A.F. and the remainder, grouped under R.A.F. control in Desert Air Force, included 13 South African,[3] one Polish and one Canadian squadron. In June 1944 this force already dominated the sky over Italy and thereafter enemy air resistance grew



progressively weaker as squadrons were withdrawn for the defence of Germany against round-the-clock bombing or for employment on the northern fighting front. With full air superiority M.A.T.A.F. thus became

[2] Until transferred to the United Kingdom in November 1944 No. 451 was also in MATAF but was concerned primarily with the invasion of southern France. See Chapter 11.

[3] The South African Government concentrated its air forces both functionally and geographically. Although it deployed no heavy bombers it was able to support one wing of medium bombers and two wings of fighters in Desert Air Force.

an extremely mobile aerial artillery and its operations were limited only by weather, availability of airfields and logistics. There was great freedom for aircrews in evolving new methods of close cooperation with Allied ground forces.

After the fall of Rome on 4th June the Fifth and Eighth Armies, which had been bunched into a narrow attacking front, spread out in a general drive towards the Pisa-Florence-Rimini line where the enemy was hastily preparing major defences. The Fifth Army moved towards Siena and Leghorn while the Eighth drove up the centre towards Lake Trasimeno and Florence. Desert Air Force began once more to concentrate almost exclusively on tasks for the Eighth Army. The fighter-bombers especially found many opportunities during the first days of the headlong enemy retreat. The R.A.A.F. Kittyhawks were given an occasional static target as on 5th June when No. 450 Squadron bombed and silenced enemy guns near Torricella, but practically all operations during the first half of June were armed reconnaissances by small groups of six aircraft in the Terni-Foligno-Perugia triangle. Enemy motor transport was the prime objective, with rail transport or facilities second in importance. It was not unusual for pilots to return from these road-strafing sorties to report that after the first few bombs had fallen the target area was so heavily shrouded in smoke and flame that individual claims could not be made. Nevertheless the fighter-bombers made large composite claims which were amply justified by the large number of wrecked and abandoned enemy vehicles found by the advancing Eighth Army. During this slaughter of transport, Nos. 3 and 450 leap-frogged from San Angelo to Guidonia airfields without any pause in operations. The first flights on 13th June took off from the old base, performed their tasks and landed at Guidonia to continue the rest of the day's program.

Guidonia was a civil airfield on the outskirts of Rome, and when bad weather set in on 18th June, preventing operations for several days, pilots and ground crews were able to relax and explore the ancient and medieval wonders of the capital. This idyllic interlude was short because the bad weather had also given Kesselring the opportunity to halt and dig in on a line running from Lake Trasimeno through Perugia to the River Chienti. On 23rd June the fighter-bombers moved to Falerium landing ground and began to operate an aerial cab rank to attack a wide variety of battle-front targets chosen by army-air liaison officers on the spot who were in radio contact with the Kittyhawks. Two very successful attacks, both by No. 3 Squadron, were made on 26th June against field headquarters of German units. Squadron Leader Bayly and Pilot Officer Field[4] both scored direct bomb hits which demolished an entire building and killed the commanding officer of a unit of the *Hermann Goering Division,* while direct hits were also achieved against the second objective. The more static ground battle also required Desert Air Force to resume attacks against communications in the enemy rear supply areas by the end of June

[4] P-O A. T. Field, 412939; 3 Sqn. Chemist; of Bowral, NSW; b. Narrabri, NSW, 25 Jul 1918. Killed in action 4 Jul 1944.

and the Bologna-Rimini railway line was attacked several times and shipping in Gatteo and Rimini Harbours was bombed. Of many such attacks one of the most successful was on 28th June when aircraft of No. 3 led by Flight Lieutenant Hooke[5] bombed the crowded railway yards at Rimini, claiming 11 trucks destroyed and 10 damaged.

During June No. 3 Squadron had flown 506 and No. 450 Squadron 487 offensive sorties from three separate bases. These figures were exceeded in July when No. 3 flew 586 and No. 450 flew 631 sorties. From Falerium during the first week of the month effort continued against enemy rearward communications. Thus on 1st July two formations of No. 450 flew to the Adriatic coast to attack a railway bridge at Fano, scoring near misses which damaged the line and approaches to the bridge. On 2nd July Squadron Leader Gleeson[6] led 12 Kittyhawks to strafe and bomb transport vehicles of the *15th Panzer Division,* while next day direct hits on a railway bridge at Cattolica and on a goods train were recorded. Pilots of No. 3 also destroyed a train between Portomaggiore and Budrio on 7th July. Many attacks were also made against enemy dumps and gun positions along the whole line, then stretching from Siena to Arezzo and thence to Ancona on the Adriatic coast. The fighter-bomber squadrons were moved 120 miles northwards to Crete airfield on 9th July so that they could more easily assist XIII Corps which was meeting fierce resistance and numerous heavy counter-attacks in the area south-west of Arezzo.

Crete, some 70 miles south-east of Florence, was so near the front line that the average length of ground-support operations in the following week was only 40 minutes; from the dispersal area ground crews could watch the Kittyhawks peeling off in their bombing dive. Targets were gun positions or strongpoints already identified together with more fleeting objectives such as enemy mortar teams which were brought to the attention of the duty flight on cab-rank patrol. The work was repetitive, each squadron sending out up to five or even six bombing sections each day until 16th July when Arezzo was finally captured by the Eighth Army. Ground reports concerning the accuracy of bombing were frequent and laudatory. Thus on 12th July wing headquarters received a telegram from the army concerning an attack that day by No. 450: "Ground reports all bombs target area. Divisional Commander watched bombing. Very impressed and delighted. Excellent bombing. Good show and thank you. No further attacks required."[7] The psychological as well as the material effect of this devastating air support from the fighter-bombers was very marked and by 18th July XIII Corps had pushed beyond Arezzo to Laterina while II Polish Corps captured Ancona, which was required as a supply port for any further advance. Meanwhile on the Fifth Army front Leghorn had also fallen by 19th July so that the entire enemy

[5] Sqn Ldr J. H. Hooke, OBE, DFC, 401216; 3 Sqn. Grazier; of Buangor, Vic; b. Ringwood, Vic, 19 Apr 1917.

[6] Sqn Ldr J. D. Gleeson, DFC, 404796. 450, 451 and 3 Sqns; comd 450 Sqn 1944. Clerk; of Brisbane; b. Melbourne, 22 May 1917. Gleeson took over command of No. 450 Squadron from Squadron Leader Hudson on 15th June. He had previously served a full tour with No. 450 during 1942 and more recently had also served with Nos. 451 and 3 Squadrons.

[7] No. 3 Squadron received five official messages of congratulation in August.

secondary defence line, held so tenaciously by Kesselring while the main Gothic line defences were being manned, had fallen. Air action, especially by the fighter-bombers in the mountainous central sectors, was a vital factor in this success.

While the enemy forces fell back slowly towards the River Arno, Desert Air Force continued to give close support as required in all sectors, but also resumed the campaign of attrition against rearward communications, especially railway and coastal shipping targets. On 16th July No. 450 scored near misses against a Siebel ferry[8] and a schooner at Rimini, while on the 25th Squadron Leader Bayly led No. 3 Squadron escorted by fighters in a daring and spectacularly successful attack against an F-boat reported at Porto Garibaldi. The vessel (150 feet in length) was found stationary in a canal. Bayly's first bomb slewed the boat across the canal and started a fire on the wharf. Three direct hits were then scored on the vessel by Flying Officer Flack[9] and Pilot Officer Donaldson,[1] and a furious explosion followed, large sections of metal being hurled into the air.

Attacks against railways were less rewarding as practically no enemy traffic moved in daylight, but fresh damage was done to tracks and choke-points on the Bologna-Ferrara line. In the battle area proper gun positions, road junctions, troop concentrations and supply dumps around Florence received daily attacks. No. 3 Squadron scored its greatest observable success on 18th July when it effectively bombed enemy troops concealed in a cemetery, while on 24th July No. 450 caused a large explosion in a tank repair depot. Later ground reports confirmed that this target received intensive damage, many troops being killed and 55 vehicles (including 15 tanks) destroyed.

On 4th August XIII Corps fought its way into the southern outskirts of Florence, but the Eighth Army then had to pause to regroup and relieve its units before attempting an assault on the main Gothic line defences. The decision to proceed with the invasion of southern France (timed for 15th August) had during July drawn off seven divisions and supporting troops from the Fifth Army, while the Eighth Army had released other divisions to Middle East Command in exchange for rested troops who would not be ready for front-line duty until mid-August. There had been a similar allocation of tactical air units for the invasion of southern France and this left Desert Air Force to meet the close-support needs of both the Fifth and Eighth Armies. Enemy forces conversely had been reinforced so that 26 German and 6 Italian divisions behind strong natural and engineered defence lines faced only 21 Allied divisions. This situation demanded revision of the original plan to breach the Gothic line in the centre near Florence. A bold new decision was made to hold a defensive front on the western and central Apennine sectors

[8] Multi-purpose craft 70-80 feet in length conveying both heavy and light flak and used for transporting troops and supplies.

[9] F-Lt P. R. A. Flack, 12569. 3 Sqn, 260 Sqn RAF. Sales engineer; of South Yarra, Vic; b. Melbourne, 8 Jan 1917.

[1] F-O D. J. Donaldson, 410642; 3 Sqn. Schoolteacher; of Kyneton, Vic; b. Kyneton, 20 Apr 1921.

and secretly to transfer the bulk of the Eighth Army's striking power to the Adriatic sector where less rugged terrain offered the most direct route to the Po Valley and the plains of Lombardy. This plan held some advantages in terms of logistics and flanking naval support, but for success it depended essentially on the factor of surprise. The necessary transfers and realignment of troops could not have taken place unnoticed but for the overwhelming aerial superiority already held and maintained throughout the critical weeks by Desert Air Force.

At Pescara, No. 454 Squadron, after some brief training in cross-country and formation flying to familiarise crews with operational conditions in their new environment, came into the line as a light-bomber unit on 1st August. For the first 10 days, until its own full complement had arrived, the squadron united with No. 223 (R.A.F.) which was leaving Desert Air Force. Each component provided one box of six Baltimores for each operation. The standard bomb-load was two 500-lb plus three 250-lb bombs, and the usual technique was for all aircraft in the box to drop their bombs on a signal from the lead aircraft. Marshalling yards at Lugo, Russi, Ravenna and Faenza, and shipping, fuel or storage targets at Porto Garibaldi and Porto Corsini were attacked during this period of operational apprenticeship. By the end of August, despite a move on 17th August from Pescara to Falconara (Ancona) where, like No. 458 Squadron, No. 454 first encountered the glutinous qualities of Italian mud, the Australians had flown 335 sorties to drop 245 tons of bombs on enemy stores, supply lines, gun emplacements and special targets such as the Todt construction labour camp at Faenza. Until 26th August these raids were escorted by fighters, but the absence of enemy air opposition coupled with priority needs elsewhere in the battle area, led to a policy of unescorted raids thereafter. The Australians soon found that anti-aircraft fire, used on an increasing scale and with great efficiency by the Germans, was a much greater danger than enemy aircraft. Two Baltimores were shot down during an attack on fuel dumps on 23rd August and in this month many more aircraft returned from raids badly holed.

There was no relaxation of fighter-bomber activity in August. The month began with a series of attacks on troop billets, strongpoints and enemy guns mostly in the centre sector to aid the XIII Corps' entry into the suburbs of Florence. On the Adriatic front where the II Polish Corps was required to make minor advances before the main attack began the Kittyhawks were out daily for almost three weeks to bomb gun positions near Fano and Fossombrone. Well-sited and camouflaged gunpits are difficult targets to subdue but on several occasions the Poles reported that individual guns had been knocked out, while often the guns were partly or temporarily silenced by the mere presence of the fighter-bombers. Three aircraft of No. 450 and one of No. 3 were shot down during the month while attacking these batteries and on 6th August Flying Officer Irving[2] (No. 3) while leading another attack had his aircraft holed in 26 places

[2] F-Lt K. G. Irving, 409124; 3 Sqn. Engineering draftsman; of Toorak, Vic; b. Ballarat, Vic, 12 Nov 1919.

by shrapnel. Other targets for the Kittyhawks during August were the rail, road and water transport routes behind the Gothic line, these taking precedence over all others during the third week of the month. Then, on 25th August, orders came to move to Iesi, an airfield inland from Falconara and directly behind the Eighth Army attack, which began at midnight on the 25th.

The first three days of the Eighth Army's offensive brought little enemy reaction. The II Polish Corps pushed steadily across the Metauro River and the fighter-bombers sent to patrol directly over these spearheads found relatively few active enemy strongpoints; there was little anti-aircraft fire and the Kittyhawks bombed targets of opportunity. Enemy resistance developed along the River Foglia and from 29th August until 1st September, when Pesaro had been captured, Desert Air Force employed both its light and fighter-bomber squadrons to reduce strongpoints in this area. No. 454 mounted seven raids (84 sorties) against a complex of posts five miles west of Pesaro, while during the same period Nos. 3 and 450 each contributed 108 sorties.

The climax came on 31st August when, in a period of 80 minutes commencing at 4 p.m., light bombers and fighter-bombers queued up to attack at five-minute intervals a series of eight strongpoints within a few hundred yards of each other. For the next few days the Australians were out on cab-rank patrols mainly in support of the I Canadian Corps, which drove through Cattolica on 2nd September and came within 20 miles of Rimini before being halted by stubborn enemy resistance at Coriano ridge. Although the light bombers and fighter-bombers scored many direct hits on artillery and mortar positions and troop concentrations at Coriano it was not until 13th September that the Canadians could resume their advance towards Rimini, by which time the enemy had transferred several fresh divisions to the Adriatic front.

As a background to operations in close support of the army at Coriano Nos. 3 and 450 attacked bridges, roads and canals beyond Rimini while the Mustang squadrons of No. 239 Wing ranged as far as Venice and Udine in search of rail traffic targets. Then on 11th September the two R.A.A.F. squadrons were ordered to move to Foiano to support a renewed drive by the Fifth Army north of Florence on the central Apennine sector. In nine days from Foiano the Kittyhawks flew nearly 450 sorties, including 72 on the 14th when each squadron sent out six striking forces. On the first mission, which took off at 6.25 a.m. to attack gun positions, the Kittyhawks of No. 450 were diverted in flight to bomb a supply train at Castel Bolognese on the Bologna-Rimini railway. Six direct hits were scored with bombs and, after further strafing, seven separate fires were burning among the 30 trucks while the locomotive was lying on its side. So important was this target, thought to be conveying tanks and armoured cars to the front, that No. 3 Squadron was sent out later in the morning to attack it. Smoke was still belching from the burning trucks but four more direct bomb hits were scored.

Meanwhile, in No. 450's second operation of the day, Flight Lieutenant Goldman's[3] section disabled three troublesome guns near Castiglione. Two missions were then flown against enemy troops dug in on a mountain ridge, another scored hits on an enemy gun and its ammunition dump, and during the evening nine camouflaged tanks were bombed at Felino, 50 miles west of Bologna. Similar tasks with less spectacular results were continued until 20th September when, with XII Tactical Air Command released from France to support the Fifth Army, the Australians returned to Iesi.

Rimini, the eastern anchor of the Gothic line, was captured on 21st September, while the Fifth Army had also made good progress in its offensive towards Bologna. This raised Allied hopes that the enemy would be forced to withdraw behind the next major geographical defence line —the River Po. Thus, while not neglecting the immediate battleground, the fighter-bombers began on 22nd September to patrol possible escape routes. On four successive days from 22nd September the Australians were officially complimented by ground observers for achieving direct hits on gun positions, but despite these and many other successes air action was unable to break the tenacious German defences. Kesselring, taking full advantage of the hilly country and the early onset of wet weather, refused to retreat and had virtually stabilised his line by the beginning of October in the face of waning attacks by the Fifth and Eighth Armies. Rain early in October turned the battle areas into seas of mud which slowed down all movement. The Fifth Army could only inch forward towards Bologna, still firmly held by Kesselring, while two more ambitious attacks during October by the Eighth Army breached the line of the River Savio, but only at the expense of committing troops and supplies at a rate which rapidly exhausted the reserves. Despite all the efforts of Desert Air Force and medium bombers of M.A.T.A.F. Allied gains were disappointing for the amount of ground and air attack involved. The Germans clung to each muddy position until the last moment and then moved back only slightly to force exhausted Allied troops to attack again over ground made even more difficult by weather and battle action. Allied reserves both of men and ammunition were insufficient to continue the battle on all sectors after the end of October, by which time it was appreciated that further advance against Bologna must be delayed for at least a month. General Mud ruled the front line.

At Iesi the two R.A.A.F. Kittyhawk squadrons, despite the cold wet discomfort of their tented camp site, had concrete dispersal bays and runways and were able to operate on 21 days during October for a combined tally of 823 sorties. Close-support strikes were the main feature of the month, and included defended villages, temporary strongpoints, guns, ammunition dumps and troop concentrations, nominated in advance by the army or chosen while the Kittyhawks were on cab-rank duties. When cloud covered the battlefield or when fighting subsided, the familiar alterna-

[3] F-Lt W. E. Goldman, DFC, 402694. 451 Sqn, 6 Sqn RAF, 450 Sqn. Contractor (station work); of Barraba, NSW; b. Barraba, 18 Feb 1916.

tive rail and road communication targets were attacked. Successes in the form of direct hits or near misses against individual objectives were relatively as frequent as before, but the fighter-bombers failed to influence the battle as they had done during the month of fluid fighting after the fall of Rome, or even as against enemy set-piece defences such as Pesaro.

Unless ground troops could attack in strength and without delay, the after results of air bombardment in close support of troops were always evanescent: a strongpoint knocked out could quickly be re-established by determined troops so that only the general attrition and not the tactical opportunities created by bombing remained. Even though on 9th October No. 3 Squadron bombed with decisive results enemy troops forming up for a counter-attack only 300 yards away from the 10th Indian Division's positions north-west of Sogliano, such instances were rare. In the muddy slogging attacks and counter-attacks of October, the fighter-bombers were only a background to the grim land battle; a particularly troublesome and flexible form of artillery bombardment against the enemy and a tremendous morale booster to Allied troops, but never able to create a decisive break-through.

It has been seen that in the five months after the fall of Rome on 4th June Nos. 3 and 450 operated without pause except on days of exceptionally bad weather. Army units alternated between the front line and reserve positions, and even in the front line there were periods of relative quiet, but the air formations never ceased their activity. For aircrews this was an exciting and arduous but not impracticable task as there were ample R.A.A.F. pilots in Desert Air Force to keep both Australian squadrons at full strength.[4] For ground crews, however, especially the original members of No. 450 who went to the Middle East in April 1941 and who had been continuously in the forefront of the Western Desert, Tunisian and Italian campaigns, the strain of supporting over 5,300 bombing sorties within five months from six different airfields was very severe. But the armourers, fitters, riggers and general support hands never flagged and no operation had to be cancelled because aircraft were unserviceable or not refuelled and rearmed in a state of readiness as soon as they landed after an operation. They suffered most both in working and living conditions from the rigours of mud and cold that came with the long wet Italian winter and it was with great relief that late in October billets were found in the village of Iesi to replace the slushy tents at the airfield. The first group of 20 tradesmen of No. 450 with more than three years of overseas service left Italy on August 17th to return to Australia. Successive commanding officers tried to ease the strain on maintenance crews, and while the squadrons were at Crete a leave camp was established at Montepulciano, a small town 20 miles distant. Operational demands were paramount, however, and palliatives not always easy to devise, so that, although there was a genuine desire to speed up the repatriation scheme for the 1941 drafts of ground crew, most of them had to resign themselves to

[4] No. 3 Squadron had a full complement of RAAF pilots: No. 450's average complement during this period was 25 RAAF, 7 RAF and 5 SAAF pilots.

the most arduous and unpleasant winter they had spent overseas. Leave for ground crews was not so generous as for pilots, nor was there the sublimation of discomfort, strain and loneliness in the satisfying fire of direct attack upon the enemy. However, the R.A.A.F. ground crews achieved uniformly high serviceability—sometimes the highest of any squadrons in the Italian theatre of war.

Australian aircrew, insofar as the repetitive task of hammering the hydra-headed guns, strongpoints and communications of a tough, fanatical, veteran and brilliantly-led German Army could give opportunities for personal distinction, were also prominent. By this time many who had served a first tour of operations as fighter pilots in North Africa were on a second tour on fighter-bomber duties. Their experience and airmanship made it comparatively easy for up to six sections of six aircraft to be sent out on any one day against widely separated and diversified targets with a minimum loss of effort through faulty navigation or bombing techniques. Boldness and teamwork in attack were the natural contribution of all pilots but there were many instances when brilliant leadership, either in the ability to identify a hidden or camouflaged target or to prosecute an attack in an inspired way against gun defences, created individual triumphs which helped to make the fighter-bombers the scourge of the front line.[5]

Group Captain Eaton took over command of the six squadrons of No. 239 Wing on 3rd August and led many outstanding raids. The successive commanding officers of No. 3 (Squadron Leaders Bayly and Nash) and of No. 450 (Squadron Leaders Hudson, Gleeson and Doyle) all gave inspired leadership both on the ground and in the air. They were fortunate in having not only pugnacious and talented flight commanders but a wide choice of rank-and-file pilots each of whom could on occasion lead individual sections in effective attack. Among the more successful leaders during the advance from Rome to the stalemate before Bologna were Flight Lieutenants Roediger[6] and Hooke, Flying Officer Irving and Warrant Officer Hewitt[7] of No. 3 Squadron and Flight Lieutenants Grigg,[8] Burden,[9] Goldman and Archbold,[1] and Flying Officers Youl[2] and Marrows[3] of No. 450. Of the R.A.A.F. pilots scattered among the other fighter-bomber units Squadron Leader Ahern and Flight Lieutenant R. A. Wild (both of No. 112) were pre-eminent.

Rather less spectacular in its role than the fighter-bombers which swarmed over the front line, No. 454 attempted from its overcrowded muddy base at Falconara to strike throughout September at gun and troop

[5] One German general (von Vietinghoff) writing after the war stated "They hindered essential movement, tanks could not move, their very presence over the battlefield paralysed movement."

[6] F-Lt I. H. Roediger, DFC, 401669; 3 Sqn. Farmer; of Lorquon, Vic; b. Lorquon, 30 Jan 1919.

[7] F-O K. H. Hewitt, 413380; 3 Sqn. Clerk; of Kogarah, NSW; b. Tamworth, NSW, 4 Jul 1920.

[8] F-Lt R. T. Grigg, 409121; 450 Sqn. Woolclasser; of Drysdale, Vic; b. Berwick, Vic, 29 Nov 1916.

[9] F-Lt R. H. Burden, DFC, 407406. 451 Sqn, 208 and 6 Sqns RAF, 450 Sqn. Station hand; of Alice Springs, NT; b. Melbourne, 11 Feb 1921.

[1] F-Lt S. J. Archbold, 401336. 451 Sqn, 6 Sqn RAF, 450 Sqn. Grazier; of Wycheproof, Vic; b. Bendigo, Vic, 14 Sep 1919.

[2] F-O S. C. Youl, 401334; 450 Sqn. Clerk; of Ormond, Vic; b. Melbourne, 7 Jul 1918. Killed in action 28 Aug 1944.

[3] F-Lt K. Marrows, 400812; 450 Sqn. Clerk; of Middle Brighton, Vic; b. Bendigo, Vic, 3 Jul 1912.

positions in the Pesaro, Rimini and Forli sectors of the Adriatic front. Despite adverse weather 32 strikes each of 12 aircraft were made, mostly led by Wing Commander Moore, Squadron Leader Beaton or Squadron Leader Cashmore, with Flight Lieutenant Strickland,[4] Flight Lieutenant Fraser[5] or Flight Lieutenant Stinson[6] as bombing leader of the secondary box. It was more difficult for the light bombers to identify small targets from their operating altitude of several thousand feet and the Australians had some early difficulties concerning accurate formation flying and bombing but results steadily improved throughout September. The rain during October on many days made it impossible for the Baltimores to take off from Falconara and only 11 attacks were made that month against gun positions, fortified villages, fuel dumps and a motor vehicle park. Cold and wet weather again prevailed in November when operations were divided between Yugoslav targets in support of B.A.F. and blind-bombing raids through cloud under V.H.F. radio control from the ground when there was no priority target on the Eighth Army front. The Balkan missions done in conjunction with No. 15 Squadron S.A.A.F. began on 4th November, when the enemy-held village of Kocevje was bombed, and continued with raids on the next three days against shipping and shore installations in Fiume Harbour; Kocevje was again attacked on 18th November.

The target for the experimental blind-bombing attacks which began on 9th December was a munitions factory and magazine area on the coast near Ravenna. Normally three Baltimores would approach the target and bomb individually on instructions from ground radar operators. At first errors both in line and range were too large for success, but as both air and ground teams became more experienced in this technique and carefully analysed the pattern of bomb-fall in successive raids against the same target, confidence was expressed that henceforth the squadron would be able to attack targets within range of ground radar, irrespective of cloud cover.[7]

The ground battle in Italy still had first call on light-bomber operations and accordingly, during a fine weather period in the second week in November, troop concentrations and fortified buildings around Forli were bombed as the 4th British Division drove on the city, which was finally captured on 9th November. Bomb-line targets near Faenza were then attacked each day that weather permitted but by the 27th continuous rain had reduced the Falconara camp almost to a quagmire, with water up to 18 inches deep. Only three small raids were possible in the first nine days of December, but during this period No. 454, whose "morale . . . was literally beginning to drag in the mud", moved to Cesenatico, a

[4] Sqn Ldr P. A. Strickland, 406264. 117 Sqn RAF, 1438 and 1437 Flts RAF, 454 Sqn. Oil salesman; of West Perth, WA; b. Katanning, WA, 21 Aug 1914.

[5] Sqn Ldr D. D. Fraser, 400672. 47 Sqn RAF, Sea Rescue Flt 201 Gp, 454 Sqn. Clerk; of South Yarra, Vic; b. Ballan, Vic, 20 May 1918.

[6] Sqn Ldr C. B. Stinson, DFC. 402414. 459 and 454 Sqns. Salesman; of Canowindra, NSW; b. Cowra, NSW, 12 Sep 1915.

[7] This blind-bombing technique was similar to that employed at the same time to direct Wellingtons of No. 458 to coastal shipping targets in the northern Adriatic.

small coastal airfield north of Rimini and very close to the front line. Overcast skies at base and over target areas continued, however, and except for two raids on the 10th, one on the 11th and one on the 15th, all near Faenza, the squadron was inactive. When at last, on 26th December, fine clear weather permitted operations the Eighth Army had abandoned plans for any further winter offensives and was reverting to defensive positions. Close-support bombing tasks thus gave way to attacks on enemy communications and supply dumps. Six raids against marshalling yards were made before the end of December but even with this burst of activity only 169 sorties had been flown and 97 tons of bombs dropped by the Australians during the month.

Weather also affected fighter-bomber operations but No. 450 was able to operate on 20 days and flew 417 sorties. No. 3 temporarily left the line on 17th November to re-equip with Mustang aircraft at the same time that both R.A.A.F. squadrons moved to Fano. Both No. 3 and No. 450 Squadrons joined in the air assault on Kocevje on 4th November and on Fiume next day, when No. 3, led by Flight Lieutenant Wannan,[8] capsized a Siebel ferry and scored a direct hit with a 1,000-lb bomb on a large naval vessel. Yugoslavian railways were also attacked at frequent intervals during the month at the request of Balkan Air Force and frequent weather reconnaissances were flown, including an outstanding flight of five hours 10 minutes on 26th November by Squadron Leader Nash in a Mustang with long-range tanks. No. 3 also joined in a very successful raid on the 6th against a transformer station near Verona, but the majority of tasks in Italy allotted during November followed the existing pattern of close support while the Eighth Army was on the move, and interdiction raids against enemy bridges and rail facilities to restrict his capacity to counter-attack while the Allied troops were halted. No. 450 distinguished itself on 7th November by accurate dive-bombing and strafing attacks against German strongpoints on the northern edge of Forli airfield, in full view of elements of the V Corps held up on the southern side. The Kittyhawks also scored a direct hit on a railway bridge at Faenza on the 23rd and cut railway lines on several occasions.

The Mustang squadrons of No. 239 Wing because of their superior range were more suitable than Kittyhawk units for supporting the partisans and harassing enemy communications in Yugoslavia. No. 3, fully operational by the beginning of December, thus flew only three missions in support of the Eighth Army in Italy, but had conspicuous success in demolishing a bridge over the River Senio on the 15th, and knocking out one span of a bridge across the River Brenta at Cismon on the 29th. Operations in Yugoslavia began well on the 2nd when four Mustang squadrons were sent to bomb Bjelovar which the partisans were proposing to attack. The village was enshrouded in cloud but Nash went down through the overcast, a hazardous action in such hilly country, to pinpoint his position, and then, rejoining his squadron, led them in to the target. When

[8] F-Lt C. W. Wannan, 421948; 3 Sqn. Schoolteacher; of Northbridge, NSW; b. Hawick, Scotland, 23 Mar 1922.

they had bombed he led in turn Nos. 260 R.A.F. and 5 S.A.A.F. Squadrons down through cloud to make further attacks. His bold initiative and leadership saved the whole operation from being abortive.

Another outstanding feat of pugnacity and experienced leadership was shown on the 6th when three squadrons of Mustangs were sent out in marginal weather conditions to strike at heavy concentrations of rail and road traffic reported two days earlier and which indicated a general German withdrawal from parts of Yugoslavia. One squadron turned back as the weather steadily deteriorated and another squadron lost six of its ten pilots because of inexperience in flying in cloud. No. 3 was led by Roediger who persisted with the mission and claimed one locomotive damaged and four trucks destroyed, but also lost one pilot who became separated from the formation 20 miles from base on the return journey. Later in the month, under more favourable conditions, several very successful attacks were made in Yugoslavia, the most profitable being on 25th December when a large aggregation of 150 to 200 railway trucks were first bombed and then repeatedly strafed. Meanwhile No. 450 flew 306 sorties on 16 days with increasing emphasis on transport rather than close-support tasks. On the 2nd a rail-river bridge at Arqua was broken, a railway tunnel between Padua and Monselice bombed on the 3rd and railway lines cut on many occasions during the month which ended with an outstanding attack on the 28th against Poiana railway yards between Padua and Vicenza and next day against a temporary rail bridge across the Brenta.

When, early in January 1945, Field Marshal Alexander decided that the Fifth and Eighth Armies should conduct an "offensive-defence" to rest their troops for a spring campaign while still forcing the enemy to keep a high proportion of his own troops in the front line, air plans were adjusted to suit the new requirements. M.A.S.A.F. and M.A.T.A.F. were to step up attacks on rearward enemy communications and supply areas both to starve Kesselring's forces while they chose to stay and fight and to prevent them from escaping should they be recalled to Germany or be driven back by the offensive which Alexander forecast for March or April. On 9th January M.A.T.A.F. ordered that XXII Tactical Air Command[9] should concentrate against the Brenner Pass while Desert Air Force attacked railways on the coastal plain and the approaches to Austria and Yugoslavia. Heavy and medium bombers were called in from time to time to make major raids against key marshalling yards and bridges, but it was left to the light and fighter-bombers to make almost daily forays to create new damage at individual points or to hinder the pertinacious enemy engineers who vainly tried to build temporary bridges and diversionary lines. Despite the vagaries of weather M.A.T.A.F. was able to make its interdiction effort so heavy that there were significant moves of enemy anti-aircraft guns from the front line to protect nerve centres of the railway system. There was also a desperate attempt to oppose some raids with half-trained and badly-equipped formations of German and

[9] The reorganised XII Tactical Air Command.

Fascist Italian fighters. The "traffic desert" created by bombing gradually grew wider: in January southward rail traffic could not go farther than Verona, but late in February the southern terminal had been pushed back to Rovereto, and in March the Germans were considering moving it even farther north to Bolzano.[1]

One result of the priority given to interdiction was a change of role for No. 454 Squadron which was chosen to convert from a daylight pattern-bombing role to intruder duties at night. Desert Air Force had long been deficient in night-striking forces, and now that the Mustangs could reach all daylight targets it was natural that the Baltimores should be selected for night use so that the greatest degree of pressure could be exerted against enemy movement. It was not until the beginning of March, however, that No. 454 was ready for operations, but thereafter a steady effort (129 sorties during March) was maintained against bridges, ferries, marshalling yards and supply dumps. The Baltimores were guided to the vicinity of targets by V.H.F. instructions given by ground radar operators and crews then dropped illuminating flares before identifying the target and releasing their bombs.

The main R.A.A.F. contribution to interdiction, however, inevitably lay with the Mustangs of No. 3 Squadron and the Kittyhawks of No. 450, which flew 538 sorties in January, 317 in February, and 829 in March. No. 450 destroyed bridges at Latisana, Padua and other places during January, besides undertaking close-support duties early in the month and hitting an ammunition dump at Arqua on the 31st. No. 3 attacked and hit several bridges in Italy and Yugoslavia, while both squadrons claimed further successes against road and rail traffic encountered on their patrols. The armed reconnaissances to north-east Italy and west Yugoslavia in February brought steady claims of successes against bridge, road and rail targets, and the better weather in March permitted heavier and more persistent attack not only against communications but also against factories, stores, power-houses and dumps.

On 21st March a precision attack was made against shipping at Venice, No. 3 operating in an anti-flak role, while Nos. 450, 5 (S.A.A.F.) and 112 Squadrons bombed and sank a 3,500-ton merchant ship, a torpedo boat and a coaster, destroyed five large store sheds and blew away 170 feet of the west quay. All these operations produced individual acts of heroism and steady casualties against increasing flak defences. Individual triumphs such as the fortitude of Flight Lieutenant Blumer[2] (No. 450) who, on

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[1] Details given by Lt-Gen Ritter von Pohl in an essay written after the war for the Chief Historian HQ European Command US Army. Commenting on Allied air operations beginning in January 1945 he wrote:

"... two new main efforts began to crystallise: a series of systematic attacks against all highway bridges in Upper Italy that were of some importance and just as systematic an operation to destroy the rail line across the Brenner Pass. The destruction of the bridges hampered road traffic to an extraordinary extent and constantly forced columns to make long detours; this of course meant a waste of time and fuel. The situation was aggravated by the fact that simultaneously enemy fighter bombers put a stop to practically all day time traffic ... attacks began invariably when, after hard and unceasing repair work of thousands of engineers and workers, the restoration of destroyed railroad facilities and thus of the entire line or important sections of the line seemed just about complete. ..."

[2] F-Lt G. M. Blumer, DSO, 413517; 450 Sqn. Law student; of Griffith, NSW; b. Griffith, 1 Jul 1923.

10th March, although severely wounded in the knee by a 20-mm shell while attacking barge concentrations near Cavarzere resolutely led his section safely home, or the brilliant bombing of Warrant Officer Turkington,[3] which halted a train in Yugoslavia on the 14th and permitted his section to destroy all 25 trucks, were symptomatic of the dominant position which the fighter-bombers had attained. By the end of March 1945 no installation was sufficiently well defended against the ubiquitous fighter-bombers and no movement of troops or supplies was possible over a very wide area without danger of surprise attack.

In the face of aerial onslaught against its communications and supplies Kesselring's forces were ill prepared when the Eighth Army struck on the Senio River front on the afternoon of 9th April. There had been no preliminary tell-tale aerial or artillery bombardment, but at the very moment of attack heavy bombers appeared with clock-work precision to drench enemy positions with a fearsome rain of bombs. The medium, light and fighter-bombers followed to attack pinpoints such as gun positions, strongpoints and battalion headquarters in the enemy defence lines. New Zealand and Polish troops crossed the Senio and by 12th April had reached the Santerno River, while on the 14th the Fifth Army started a complementary offensive towards Bologna. Day and night air attack gave the enemy no rest, fighter-bomber targets shifting steadily from the Santerno to the Sillaro River as the attack opened on the Argenta gap. Once the Argenta gap had been forced with the aid of determined but costly close-support attacks by the fighter-bombers between 17th and 19th April the enemy positions at Bologna were threatened from two directions and American troops of the Fifth Army and Polish troops of the Eighth Army entered the city. With Ferrara also threatened the Germans had no practical alternative but a general withdrawal across the Po River.

Between 9th and 21st April Desert Air Force flew over 6,000 sorties (including 650 by Nos. 3 and 450 Squadrons) in what was to be the last sustained close-support operation in Italy. After the 21st the fighter-bombers were switched immediately to smashing ferry crossings on both banks of the River Po. Similar attacks took place as the battle moved northwards to the Adige River where the last flickers of organised German resistance were extinguished. From the Adige northwards the enemy forces were in rout and in three days No. 239 Wing accounted for 500 motor vehicles on roads packed with fleeing and utterly disorganised troops. Only bad weather which curtailed air operations after 26th April saved the Germans from heavy casualties. Finally on 2nd May as a result of negotiations three days earlier all German forces in Italy and west Austria surrendered unconditionally. Abruptly Desert Air Force reverted to virtual police and reconnaissance duties; the long hard journey from El Alamein was over.

[3] W-O J. M. Turkington, 421525; 3 Sqn. Audit clerk; of Rose Bay, NSW; b. Waverley, NSW, 15 Jan 1923.

CHAPTER 15

COASTAL COMMAND, 1944-45

GERMAN U-boats were forced to flee from Biscay ports to Norwegian bases in mid-August 1944 at the very time when their operations against Allied shipping in the English Channel first showed some promise of success. Six merchant ships were sunk in this area early in that month by a group of U-boats which patiently crept with the aid of *Schnorkels* through the naval patrols. Other U-boats sank a merchantman and an escort vessel in a convoy off the north coast of Cornwall, and, had it been possible for the Germans to retain their bomb-proof French bases, this late flicker of anti-invasion activity might have risen to threatening proportions in view of the logistical problems the Allies had to face.

The neutralising of the Biscay ports by no means ended the responsibility of anti U-boat squadrons in No. 19 Group of Coastal Command which for the past four years had waged an unceasing struggle against the submarines sailing from them. The German U-boat fleet was still large and, despite heavy casualties and relative lack of success since the spring of 1943, Admiral Doenitz placed the highest hopes in his submarine arm. Nearly all German naval vessels larger than destroyers had been almost immobilized to provide ever more U-boat crews; large numbers of skilled workmen were busily constructing prefabricated submarines of radical design and greatly improved underwater performance, and even the old-type boats if fitted with *Schnorkels* had proved effective in the hands of resolute crews. Thus after a lull during which the U-boat fleet settled down in new bases it was feared that some at least would be sent back to the English Channel and other focal shipping areas protected by No. 19 Group.

No. 10 Squadron R.A.A.F. at Mount Batten and No. 461 (R.A.A.F.) at Pembroke Dock in common with other squadrons were required to operate with undiminished frequency although crews realised that their chances of discovering and attacking a submarine were small. The brief Indian summer of opportunity between 10th and 18th August had permitted aircraft to sink six of the U-boats setting out for Norway, but thereafter until the end of the war operational incidents in this area were few. The enemy policy of employing U-boats as true submarines and not as submersible torpedo boats, and the fact that the main stream of U-boats no longer had to come and go through the area patrolled by No. 19 Group naturally curtailed opportunities to attack, but the patrols had to continue as a vast insurance policy. Any U-boat suspected of being in a focal area of Allied shipping had to be pinned down and harried so thoroughly that it could not get into position to fire its torpedoes. Aircrews had to readjust their thinking on purely defensive lines and to see the justification of their effort in the relative immunity of shipping within their area.

No. 10 Squadron flew 58 anti-submarine patrols in daylight during August but although several sighting reports made by other aircraft were

investigated no contact was made with a U-boat. At the end of the month eight other sorties were made as anti U-boat escort to naval forces bombarding enemy garrisons in the Brittany strongpoints. The highlight of the month was a fine example of airmanship by Flight Lieutenant Tilley during an afternoon patrol in the Inner Bay area when he sighted a "K"-type aircraft dinghy with two men aboard and another man clinging to it 80 miles west of Royan. He reported this sighting and circled for an hour. Then, fearing that the swimming airman was becoming too weak to hold on any longer, he determined to alight and rescue the three survivors. Because of past difficulties in attempts to set down Sunderlands in open sea there was a general prohibition against this manoeuvre except in emergency, but Tilley chose to disregard this order on humanitarian grounds. Soon after 3 p.m. he jettisoned his depth-charges and made a well-judged safe alighting. The three exhausted airmen were taken aboard and flown back immediately for hospital treatment. They explained that they were survivors of a Wellington of No. 172 Squadron shot down while attacking a U-boat the previous night.

By the end of August all German fighters had been withdrawn from western France and the Sunderlands could operate without cloud cover, and close inshore, even in daylight. Port and anti-shipping reconnaissances of the type which the squadron had not attempted since mid-1942 were undertaken by crews of No. 10 during September. The object was to detect any surface vessels moving between the isolated German garrisons or attempting to escape to Spanish ports so that they could then be attacked by Beaufighters, Mosquitos and Halifaxes. Several of these searches were successful in reporting ships at various points between Brest and Bordeaux. Some flights were not without excitement, as on 19th September when Flying Officer Dennis'[1] aircraft was fired on by enemy batteries at the Ile de Groix before he moved on to St Nazaire where one merchant ship and a *Sperrbrecher* were seen moving in the harbour and other ships (damaged and apparently abandoned) close inshore. Other Sunderlands were fired on over the Gironde on 21st September and at Belle Isle the next day.

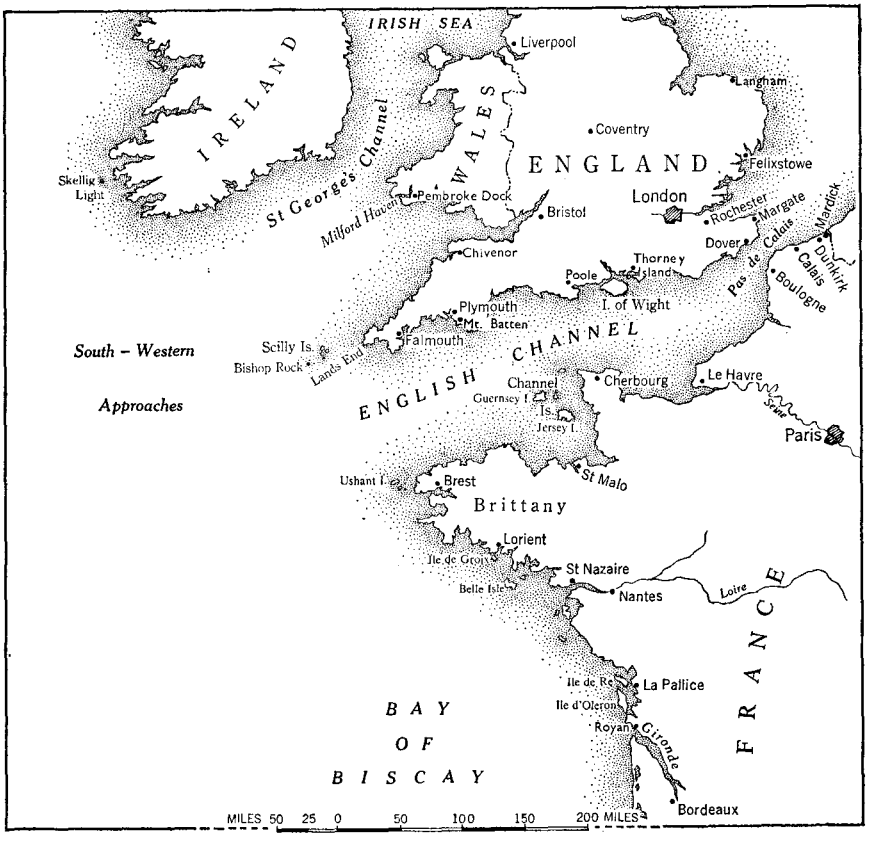
The major sighting at sea was on 16th September when Flight Lieutenant Mabbett[2] reported the motor vessel *Rostock* steaming due east at a speed of 5 knots. The *Rostock* claimed that she was a hospital ship bound for a Spanish port but the Sunderland remained circling until two motor torpedo boats arrived to escort the ship to an Allied naval force so that its bona fides could be examined. Another Sunderland piloted by Flying Officer Johnson[3] joined Mabbett for a short time but then resumed its own patrol. Just before 4 p.m. one engine exploded and finally fell off after the aircraft had been dived down to an altitude of 100 feet. Distress

[1] F-Lt E. S. Dennis, 419459; 10 Sqn. Clerk; of Williamstown, Vic; b. Scottsdale, Tas, 17 Jul 1916.

[2] F-Lt J. O. Mabbett, 410247; 10 Sqn. Clerk; of South Melbourne; b. South Melbourne, 30 Sep 1919.

[3] F-Lt R. M. Johnson, 422861; 10 Sqn. Grazier; of Girilambone, NSW; b. Orange, NSW, 3 Dec 1913.

signals were sent out and all disposable weight including guns, ammunition and depth-charges was jettisoned. The aircraft set course for base but an hour and a half later a second engine failed and Johnson was forced to ditch in the sea. The crew were rescued some three hours later by a high-speed launch and the Sunderland was subsequently towed back to Plymouth by another naval vessel.



Fifty-five patrols made by crews of No. 10 in and around the Bay of Biscay during October were no more productive than the 51 during September. Anti-shipping searches accounted for nearly half this effort; convoy escort patrols for one-third, and independent searches in inshore areas where U-boats were suspected of loitering for the remainder. The convoy and anti U-boat patrols were entirely uneventful but no Allied ships were sunk by submarines. There were in fact very few U-boats at sea in the North Atlantic at this time and they were far from aggressive. Their mere presence, however, was a potential threat to shipping and

caused the Allies great uneasiness because, unless they suffered physical attack, U-boat crews were likely to recover their morale, badly shaken by past losses, and to penetrate in strength into focal areas. This fear was all the greater because the onset of winter weather not only affected the availability of aircraft to maintain regular searches, but sea conditions also protected the "schnorkelling" U-boat against both radar and visual search.

Existing types of radar used by the Sunderland squadrons were of little value except against surfaced targets and it was not practicable to design and develop ultra-sensitive sets capable of identifying a periscope or a *Schnorkel* at long range, because so much of the Allied electronic potential was irrevocably allotted at this time to the needs of Bomber Command. There was, therefore, at Mount Batten and other Coastal Command bases a great revival of interest in techniques of visual scanning especially with the aid of binoculars. Now that enemy aircraft need no longer be feared all crew members could concentrate on the surface of the sea. Despite the mesmeric effect of continuous scanning during a sortie of up to 14 hours, the Sunderland captains, by switching crew members from one look-out position to another, and by rest periods, could increase the efficiency of each watcher, while the increase in active look-out positions, especially in beam positions, gave far more chance that the small and elusive target presented by a *Schnorkel* would be picked up.

November was a quiet month for No. 10 Squadron for by this time the need for shipping searches in the German-held ports of the Bay of Biscay had disappeared. Forty-seven sorties were made on convoy escort and sweeps along convoy lanes in the South-Western Approaches to the English Channel. On 3rd November one R.A.A.F. Sunderland was diverted from its planned patrol to hunt a U-boat but although it circled systematically for nearly eight hours no contact was made with the submarine. On 12th November another crew sighted an object which they considered was a *Schnorkel* although it could not positively be identified as such. But such incidents were rare highlights in the general picture of long negative patrols, faithfully performed according to set plans but in some ways more arduous because they were so uneventful. Bad weather in December caused some of the 48 operational flights from Mount Batten to be curtailed so that aircraft could land at base before last light. The strain of seeking perpetually a will-o'-the-wisp periscope or exhaust pipe amidst the deeply-etched wind lanes, white horses and spume of the heaving, grey wintry seas tended to dull but could not blunt the keenness of the Australians, and at the very end of the year a brief flickering of operational interest brought a general revival of spirits.

One Sunderland sent out on Christmas Day was diverted to a position where a Halifax was already hunting a possible submerged submarine. The markers indicating the last known position of the enemy were refreshed by the Australians who then conducted a careful square search based on this datum for five hours but without result.

Meanwhile Flight Lieutenant Reeve[4] in K/10 while on convoy escort duties the same afternoon sighted a periscope and *Schnorkel.* He could not reach the position until 50 seconds after the periscope disappeared and the U-boat was then thought to have dived too deep to be damaged by the shallow-set depth-charges carried by the Sunderland. As this position was only two miles distant from a ship straggling behind the convoy, Reeve did drop one depth-charge as a forcible reminder of his presence and to deter the enemy from surfacing again. He then remained circling until naval vessels arrived to continue the hunt.

On 26th December the crew of H/10 while patrolling in the English Channel reported sighting a periscope and homed naval vessels. Two days later in the outer limits of St George's Channel to the south of Ireland G/10 attacked with two depth-charges what was at first thought to be a *Schnorkel* but which was then reassessed as a disturbance caused by a whale. Finally on 29th December E/10 reported a mysterious oil slick during its patrol and was ordered to remain circling the position until a surface hunting group arrived to relieve the Sunderland.

Mount Batten continued throughout this period to be virtually a R.A.A.F. base, with Group Captain J. Alexander in command. No. 10 Squadron could, however, no longer look to Australia for replacement of air and ground crews and, like the *Article XV* squadrons, now had to rely on the limited pool of R.A.A.F. men available in the United Kingdom. When there were insufficient Australian tradesmen to replace time-expired men, other nationals had to be chosen. There was, however, no lack in Coastal Command of R.A.A.F. men to fill the main aircrew categories whether as trainees or leaders. When Wing Commander Gillies and Squadron Leader Brown, both of whom had served with the unit for over three years, were finally withdrawn on 2nd October Wing Commander H. G. Cooke who had completed an operational tour with No. 461 and Squadron Leader Adams[5] a very experienced Sunderland pilot who had operated mainly from West Africa were readily available to take over as commanding officer and flight commander respectively.

Bad sea conditions continued to worry the Australians at Mount Batten, especially as their Sunderlands often had to lie at exposed moorings because Plymouth was still being used by large numbers of light naval vessels which needed priority in the inner harbour. On 2nd September 1944 one Sunderland drifted on to the rocks in front of the officers' mess after a ship had broken anchor during a gale and crashed into the flying-boat. The crew abandoned the aircraft but two men got into difficulties and were rescued only after Group Captain Alexander dived into the water and supported them until a boat arrived. Again on 12th October a Sunderland sank at her moorings during a fierce gale. Other major accidents were prevented only by the vigilance of skeleton storm crews on duty in each aircraft during bad weather conditions. Happier occurrences which marked

[4] F-Lt S. R. H. Reeve, 429485; 10 Sqn. Dairy chemist; of Campbelltown, NSW; b. Campbelltown, 14 May 1918.

[5] Sqn Ldr P. G. Adams, DFC, 402835; 95 Sqn RAF, 10 Sqn. Law clerk; of Corrimal, NSW; b. Sydney, 29 Apr 1918.

this period were visits by the Duke of Gloucester, Governor-General designate of Australia, on 19th August, and by Mr A. S. Drakeford, Australian Minister for Air, on 25th December. The dominant theme at Mount Batten, however, was the day-to-day struggle against the U-boat. Many optimistically looked forward to transfer to the Pacific as soon as the war against Germany could be won, but first the U-boat stalemate had to be broken and to that end both air and ground crews bent all their efforts.

No. 461 Squadron at Pembroke Dock found that its patrols after the brief glory of mid-August were even less rewarding than those of No. 10. Flying by night it was virtually impossible to sight visually a *Schnorkel* or its smoke while radar search was very tiring and unlikely to produce opportunities for attack. In the Bay and the English Channel the Sunderlands were almost back at the stage when they were primarily "scarecrows" to limit the operational freedom of German submarines rather than to attack them. At night too No. 461 missed the visual reconnaissance of enemy anchorages which enlivened the Bay patrols of No. 10 during August and September. Nevertheless No. 461 flew a record number of sorties (89) during August followed by 59 in September, nearly all the latter being on the "numbered" area patrols designed to clear the flanks and turning points of convoy tracks.

Late in September six Sunderlands of No. 461 together with aircrew and a specialist maintenance team were sent to Sullom Voe in the Shetland Isles, while a similar number of Catalinas of No. 210 arrived at Pembroke Dock for their crews to be given training in Leigh-light operations. This detachment was popular with the Australian crews as the Northern Transit Area had by this time obviously replaced the Bay and Channel as the most likely place to catch an unwary U-boat attempting to travel on the surface. Patrols in Norwegian waters began on 30th September and continued throughout October: a total of 39 independent sweeps and searches in cooperation with naval hunting groups all proved negative, but one Sunderland was lost on 1st October. Meanwhile from Pembroke Dock during October only 19 anti-submarine and 6 convoy escort patrols were flown and even in November when the whole unit was reunited at its main base only 42 sorties were attempted. Both November and December (48 patrols) were bleak months during which no radar or visual sightings were made.

Australians serving with other flying-boat squadrons during the latter part of 1944 found their patrols equally negative: unproductive of incident and successful only in a preventive sense. To the far greater number of individual R.A.A.F. aircrew with land-based units of Coastal Command this period brought changes in location and role which tended to compensate for the relative lack of opportunity to attack U-boats. The Liberator units were the only ones equipped at this time with "sono buoy" equipment and it was natural that they should thus become the spearhead of Coastal Command and be deployed in areas of optimum opportunity.

Next in importance in relation to anti-submarine search were Leigh-light Wellingtons. Halifax units which lacked refined types of radar or illuminating equipment but were faster, more manoeuvrable and better suited for bombing duties than were flying-boats tended to be transferred to anti-shipping duties, or raids against U-boat training grounds in enemy protected areas. None of these types of aircraft, even those apparently handicapped in the struggle against submerged submarines, could be declared redundant. In fact Coastal Command sent strong appeals to M.A.A.F. for the urgent transfer of units which might no longer be required in the Mediterranean. The more elusive the U-boats became the more emphasis was placed on increased hours on patrol against them.

The sono buoy was in principle a self-contained miniature broadcasting station which floated on the surface after being released from an aircraft or ship. A self-releasing trailing hydrophone was intended to pick up any sound effects from a near-by U-boat and the transmitter would then send a modulated signal capable of being picked up by a matched receiver within a radius of five to ten miles. Normal practice was to drop several buoys in a predetermined pattern with each working on a separate frequency so that by listening to each buoy separately the underwater path of a submarine could be determined by the varying responses over a period of time. The idea was first conceived by an English operational research scientist in 1941 but, owing to other commitments and the then trend of U-boats to operate as submersible torpedo boats, little design or production work followed in the United Kingdom. Research and development studies were made in the United States with special reference to inshore operations by U-boats. Although it was used experimentally in 1943, Coastal Command did not use this equipment extensively until the enemy resorted to schnorkelling techniques, and because supplies were not available from local sources only the Liberators could be quickly fitted with this aid. The buoys were not easy to use: successful laying of a pattern demanded exceptional airmanship while the recognition of submarine noises and their interpretation called for continuous training and practice.

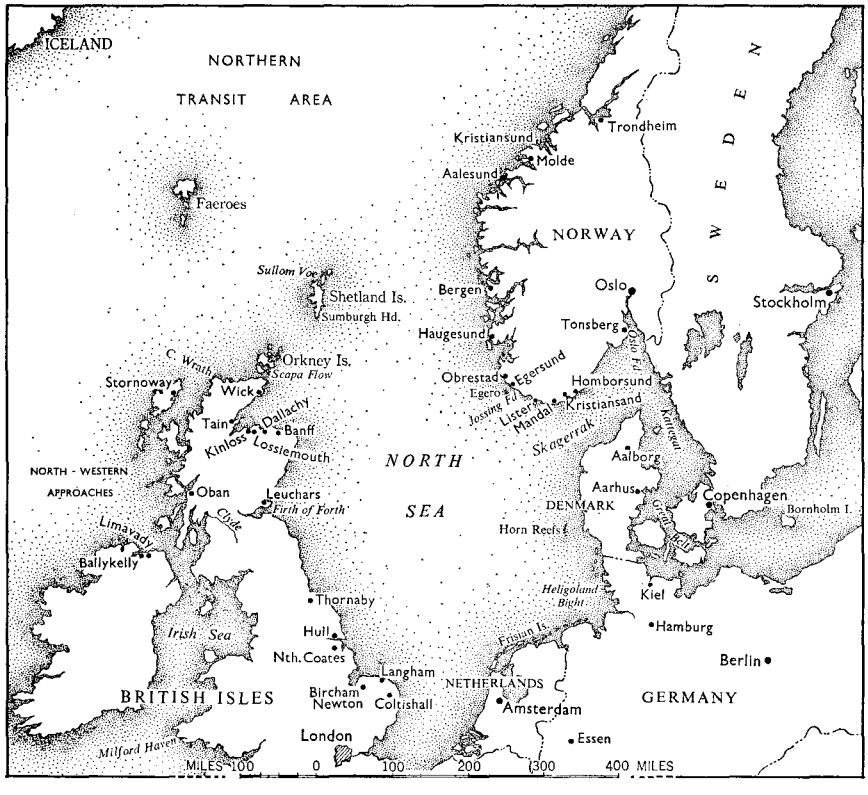
No. 53 Squadron R.A.F. (Liberators) contained a significant sprinkling of R.A.A.F. aircrew from late 1941 until the end of the war. On 30th July 1944 Flight Sergeant Johnson[6] was the navigator of G/53 which, after a well-coordinated attack with B/224 against a U-boat in the English Channel, dropped sono buoys and homed an escort group to the spot. This resulted in the sinking next day of *U333* by H.M.S's *Loch Killin* and *Starling* and was claimed by the squadron as the first occasion when a U-boat had been sunk as the result of sono buoys dropped by Coastal Command. No. 53 was then switched to the task of harrying U-boats withdrawing from the Bay of Biscay and Flight Lieutenant Archer[7] and Flight Sergeant Kirkland[8] were navigator and wireless operator-air gunner

[6] P-O P. W. Johnson, 423160; 53 Sqn RAF. Cadet engineer; of Naremburn, NSW; b. Artarmon, NSW, 25 Dec 1922.

[7] F-Lt T. K. Archer, 414378; 53 Sqn RAF. Orchardist; of Amiens, Qld; b. Stanthorpe, Qld, 16 May 1920.

[8] W-O K. A. Kirkland, 424918; 53 Sqn RAF. Bank clerk; of Booyong, NSW; b. Bangalow, NSW, 13 Aug 1922.

respectively[9] in a crew of G/53 which attacked *U618* on 14th August, the kill being shared with H.M.S's *Duckworth* and *Essington*. As the U-boats retreated northwards No. 53 was sent to Iceland in September in the expectation of enemy attacks in the focal convoy area there, but they found night operations very difficult because innumerable radar responses were obtained from Icelandic fishing vessels. At least one U-boat was lurking off Reykjavik, because two ships were torpedoed, but although they flew consistently in the difficult weather of November and December the Liberators had no success.



Australians flying with No. 59 Squadron (Liberators) from Ballykelly in Northern Ireland were involved in three attacks between 19th July and 4th August and in each case the U-boat was assessed as probably damaged. A lean period then began which, except for one possible periscope sighting in October, was punctuated only by five disappearing radar and several indefinite sono buoy contacts which led to no attacks. By the end of the year No. 59 was devoting half its effort to convoy escort and

[9] These men, who had joined the squadron only on 31st May together with two other Australians, had already participated in a very promising but non-lethal attack against a U-boat in the Channel on 18th June.

half to anti U-boat sweeps, but the only highlight was on 6th December when Flying Officer Carkeek[1] found a large oil patch north-west of Cape Wrath. Naval vessels were searching in the area so Carkeek dropped a sono buoy pattern and reported very strong pulses. He himself could not attack but it was later learned that his sono target was *U297,* believed mortally wounded after an attack by Sunderland Y/201.[2]

There were also several Australians with No. 120 Squadron, another Liberator unit based at Ballykelly, but for months their patrols in the North Channel and to the north-north-west of Ireland failed to discover any targets, until late in December when one positive sono transmission, a fully surfaced submarine and a *Schnorkel* were reported within a week and naval vessels homed to each incident. No. 206 Squadron recalled from the Azores and re-equipped with Liberators in readiness for the expected enemy reaction to invasion of "Fortress Europa" was sent northwards to work from Stornoway, Tain and Leuchars in No. 18 Group during July 1944. No. 547 Squadron transferred from No. 19 Group to Leuchars late in September 1944 as soon as its crews had completed full training in Leigh-light techniques. Both Nos. 206 and 547 had received a marked influx of R.A.A.F. aircrew during the spring of 1944 but they found their anti-submarine patrols, which were mostly off the Norwegian coast, uneventful.

The two active Leigh-light Wellington units with which R.A.A.F. aircrew were serving in appreciable numbers fared little better than the Liberators during the autumn and winter of 1944. Flight Lieutenant Elyard[3] (navigator), Flying Officers Bean[4] and Jenkins[5] (wireless-air gunners) made a night attack against a U-boat in the Bay of Biscay on 6th August. Six days later while on an afternoon sweep in the same area they picked up a radar echo at a distance of 22 miles and homed skilfully to permit an attack with depth-charges. These appeared to straddle the stern of the target, which remained surfaced for 20 minutes circling at slow speed and firing continuously at the Wellingtons. These fleeting opportunities, like those of No. 461, soon passed and in September the unit was sent to Limavady in Northern Ireland. From this base four months of pertinacious flying produced no sightings.

A sister squadron, No. 612, operated from Chivenor in Devon for the invasion period but only one inconclusive attack was made, by Pilot Officer Porter on 18th June. Lack of success by no means signified lack of effort or application and the unit operational record book recorded a special tribute to Flight Lieutenant Dulley,[6] the squadron radar leader,

[1] F-Lt K. G. Carkeek, 419083; 59 Sqn RAF. Painter and decorator; of Elsternwick, Vic; b. St Kilda, Vic, 16 Mar 1915.

[2] Post-war investigation credited the sinking of this U-boat to HMS's *Loch Insh* and *Goodall* on this day.

[3] F-Lt R. A. Elyard, 421318; 172 Sqn RAF. Salesman; of Rockdale, NSW; b. Kempsey, NSW, 24 Jan 1919.

[4] F-O F. R. Bean, 425092; 172 Sqn RAF. Commercial artist; of Brisbane; b. Southport, Qld, 9 Oct 1920.

[5] F-O R. W. Jenkins, 421279; 172 Sqn RAF. Junior clerk; of Ashfield, NSW; b. Marrickville, NSW, 15 Jan 1921.

[6] F-Lt W. T. Dulley, 405045; 612 Sqn RAF. Shop assistant; of New Farm, Qld; b. Kalgoorlie, WA, 22 Aug 1913.

who had "worked extremely hard to promote efficiency among operators and also played a big part in organising training programs". No. 612 also moved to Limavady in October 1944, but was again transferred in December—this time to Langham in Norfolk for anti-shipping work off the Dutch and German coasts in compensation for the move of the Langham Beaufighter Strike Wing to Dallachy. This latest change of location and role gave a great boost to morale and no fewer than 21 attacks on enemy shipping were recorded between 23rd December 1944 and 9th January 1945. One outstanding attack was that by Flight Lieutenant Wood[7] on 27th December in which two out of a flotilla of six E-boats were claimed as sunk.

Coastal Command's two squadrons of Halifax aircraft (Nos. 58 and 502 Squadrons) operated principally by night in both anti-submarine and anti-surface shipping roles. When patrols were primarily directed against U-boats a bomb-load of five 600-lb special anti-submarine bombs was carried, while for shipping strikes a stick of six 500-lb medium-case bombs was preferred, but in fact either load could be (and was) used effectively against all targets, including ships in enemy harbours. Australians with No. 58 Squadron made several attacks against U-boats and E-boats in the English Channel during June and July but during late July and throughout August they operated almost entirely against shipping in the Bay of Biscay or along the northern coast of Brittany. The enemy had three modern destroyers, one torpedo boat, several *Sperrbrechers* and a host of small auxiliaries in these waters; these vessels, although severely harried during the day by Beaufighter strike wings, tried repeatedly to escort German supply convoys under cover of darkness. Almost every day brought some action for the Halifaxes, varying in scale from the set-piece joint attack by aircraft of Nos. 58 and 502 against an aggregation of ships near the Ile de Groix in daylight on 8th August to nightly onslaughts on targets of opportunity sought out by individual crews under the very noses of enemy shore defences.

Among the three dozen Australians with No. 58 at this time none was more active than Flight Lieutenant McLeod[8] and his navigator Flying Officer Heath.[9] During a typical anti-shipping patrol by a single aircraft McLeod operated close inshore to the Brittany coast on 3rd August and at 5 a.m. was engaged by shore batteries at Les Minquiers south of Jersey Island. Later a radar contact at 6.15 led to visual recognition of five E-boats proceeding in an inverted V formation. McLeod attacked at 7 a.m. when the E-boats were 25 miles west of Jersey and Heath saw a definite hit on one E-boat while other bombs burst in the sea near the enemy formation. There was an orange-red flash followed by a cloud of black smoke. The Halifax returned to base with a 10-inch hole in its port mainplane. Results of several attacks made by this crew on other dates were harder

[7] F-Lt W. F. Wood, DFC, 401169; 612 Sqn RAF. Clerk; of East Malvern, Vic; b. Sandringham, Vic, 27 Nov 1916.

[8] F-Lt D. R. McLeod, 403083; 58 Sqn RAF. Clerk; of Petersham, NSW; b. Goomalling, WA, 20 Sep 1916. Killed in action 29 Nov 1944.

[9] F-O R. D. Heath, 424005; 58 Sqn RAF. Clerk; of East Lindfield, NSW; b. Armadale, Vic, 27 Jan 1917. Killed in action 29 Nov 1944.

to assess because they took place in darkness under conditions which made both visual or photographic evidence difficult to obtain. All crews, however, were constantly reminded at Intelligence briefings that their patrols obviously hampered supply traffic and made offensive E-boat operations both hazardous and costly. The same kind of satisfaction was felt by the much smaller number of Australians performing the same tasks with No. 502 Squadron. The major incident for this squadron was the daylight strike on 8th August (see above) which was led by Squadron Leader Hannah[1] and resulted in the claimed sinking of a *Sperrbrecher*. On 12th August Hannah sighted another *Sperrbrecher* off the Ile de Re and homed an escort group which sank the ship with gunfire.

By the end of August the Halifaxes could no longer find adequate targets in French waters and both Nos. 58 and 502 were sent to Stornoway for anti-submarine patrols. September, however, was a blank month and crews were pleased when on 4th October it was decided that henceforth both units would concentrate on anti-shipping duties off the Norwegian coast and in the Skagerrak and Kattegat. Twelve attacks were made during October of which the most interesting was on the 21st when Heath homed on two large merchant ships at the northern end of the Skagerrak. He attacked from 5,000 feet altitude with six 500-lb bombs at 10.23 p.m. and a red glow on the surface was reported two minutes later. Twelve attacks, mostly in the Skagerrak, were also made during November including one on the 24th by Flying Officer Faneco.[2] On 29th November McLeod sent a radio report that he had attacked a 4,000-ton ship in the Kattegat (off Aalborg) and estimated two bomb hits, but his aircraft failed to return from this patrol so no confirmation was possible.

Increasing enemy night-fighter reaction to the Halifax night strikes had already been noted and this led in December to new tactics of flying at low level in danger areas. Weather also influenced the ability of the Halifaxes to intercept the increasingly important traffic between Oslo and Baltic ports, but whenever conditions were unsuitable for sea searches, shipping at anchor at Kristiansund and Aalesund in central Norway was bombed. These harbour attacks to the north of the area in which the Beaufighter and Mosquito strike wings operated put further strain on enemy coastal seamen, who were subjected to the constant strain of surprise air attack in all Scandinavian waters south of Trondheim. No. 58 Squadron thus made 21 attacks[3] during December against ships in harbour or at sea. Faneco, whose crew included three other Australians, was again prominent, while Warrant Officers McCubben,[4] Rabig[5] and Finlay,[6] three wireless-air gunners, served together in another "mixed" crew which scored a direct hit

[1] Sqn Ldr D. M. Hannah, DFC, 400412. 200 and 502 Sqns RAF. Clerk; of Caulfield, Vic; b. Prahran, Vic, 3 Sep 1916.

[2] F-O F. W. Faneco, 409529; 58 Sqn RAF. Farmer; of Plenty, Vic; b. Ararat, Vic, 17 May 1918.

[3] One or more RAAF crewmen were involved in 15 of these 21 attacks.

[4] F-O J. M. McCubben, DFC, 414719; 58 Sqn RAF. Farm labourer; of Mackay, Qld; b. Mackay, 17 May 1922.

[5] W-O W. A. Rabig, 425054; 58 Sqn RAF. Stockman; of Windorah, Qld; b. Windorah, 16 May 1923.

[6] P-O H. Finlay, 414997; 58 Sqn RAF. Forestry overseer; of New Farm, Qld; b. Mount Morgan, Qld, 11 Mar 1915.

on an 8,000-ton merchant ship just north of Trondheim Fiord on 20th December, bombed but missed a ship in the Skagerrak on the 27th, and then damaged one of two ships found on the 30th at the mouth of Oslo Fiord.

During the latter part of 1944 prime Australian interest in the campaign against enemy shipping lay with No. 455 Squadron which maintained its distinctive national character.[7] August did not, however, bring the same opportunities in the North Sea as were enjoyed by the strike wing and Halifax squadrons operating over the Bay of Biscay. At Langham low cloud and coastal fog were prevalent during the period of the Falaise-pocket battle and the precipitate German retreat eastwards. Enemy shipping withdrew from ports in northern France and Belgium by night and under cover of strong defences. Even training activities at Langham were affected by weather during the last fortnight of August, but on 17th and 18th August Davenport made demonstration attacks against a ship target to assess the lethal effects of new rocket projectiles with a 25-lb solid head in place of the normal explosive head. The first pair he fired on the 17th hit the target in the engine-room causing a large gaping underwater hole through which water poured at an uncontrollable rate. Whereas the explosive head had previously been valuable as an anti-flak measure and had also damaged ships, watching crews enthusiastically hailed the new solid head as a more effective weapon for sinking ships providing an underwater hit could be achieved.

After a lull of 12 days in which only one negative reconnaissance near Heligoland and another off the south-west coast of Norway had been attempted Davenport on 25th August led Nos. 144, 254, 455 and 489 Squadrons on an evening sweep along the Frisian Islands. Visibility was so bad in the search area that Davenport had decided to abandon the sortie when an escorting fighter reported two ships and possibly others in the haze. The Beaufighters made a wide turn to starboard to intercept these ships and at 8.50 p.m., close to Borkum, identified five merchant ships in convoy with two minesweepers, an armed trawler and an *Artevelde*-type escort vessel flying protective balloons. The Australians, acting in an anti-flak role fired seven pairs of rocket projectiles against the *Artevelde*-type vessel, three pairs against one of the "M" class minesweepers and two pairs against an unidentified ship in the second column of the convoy. Heavy cannon attacks were then made against all the escorts and some merchant ships. The large escort vessel was seriously damaged and set on fire but the attack was only partially successful as all the torpedoes dropped missed the convoy.

Better results were obtained four evenings later when a similar force of 46 Beaufighters sighted and attacked five ships near Heligoland. Eleven of the 13 R.A.A.F. crews attacked with rocket projectiles, three claiming hits on the leading flakship, five claiming hits on a large merchantman, one scoring waterline and underwater strikes on a smaller merchant vessel,

[7] At 31st August 1944 50 of the 64 aircrew members were Australian but only 34 of 126 ground crew could be provided from the diminishing pool of RAAF tradesmen then in the United Kingdom.

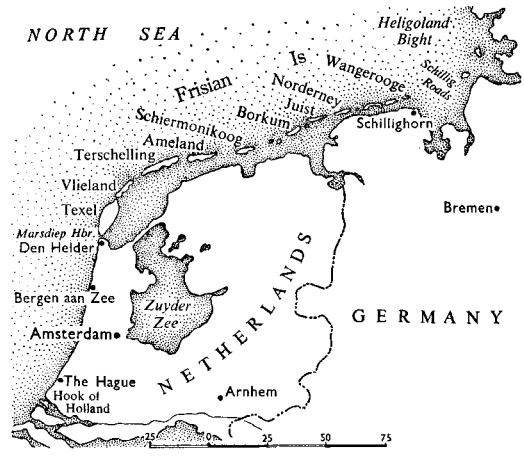
and one attacking the rear escort vessel. Two of the Australians had been crowded out of line at the time they should have released their rockets but they were able to join in with the others in cannon attacks as the formation swept over the convoy at mast-top height.[8] Behind this wall of fire the torpedo carriers of No. 489 (N.Z.) Squadron swept in to score two major hits. Two Beaufighters from other squadrons were shot down and Squadron Leader Milson's aircraft was hit in both engines and the cockpit damaged but he was able to keep one engine running and coaxed the Beaufighter back to Langham. As a result of this attack two merchant vessels (one of 3,548 tons and one of 1,450 tons) were sunk and two escort vessels were damaged.

Wing Commander Wiggins led 50 aircraft of Langham Wing to Egero in mid-afternoon on 30th August without finding any targets, while a similar force sent to the same area on 3rd September sighted only a 5,000-ton cargo liner painted white and bearing a Red Cross steaming northwards with three escorts. The Beaufighters were fired on by the escort vessels as well as by shore-based guns, but Milson decided to withhold any counter-attack as the liner was ostensibly a hospital ship. Searches along the Frisian coast by single aircraft sent out at half-hourly intervals on days of good visibility were equally unproductive, but during the evening of 6th September an armed reconnaissance by 26 aircraft of Nos. 455 and 489 in the same area led to the sighting of a convoy of four merchant ships and eight escorts. Wiggins led the 13 R.A.A.F. and 7 R.N.Z.A.F. anti-flak aircraft into an immediate attack under cover of which the six Torbeaus were able to torpedo two ships (1,348 tons and 1,260 tons) which later sank. Return fire from the convoy was surprisingly meagre but shore-based guns at Schillighorn and Wangerooge joined in the battle and five Beaufighters were damaged but all returned safely.

After a negative sweep by the Langham and North Coates Wings off south Norway on 8th September, No. 455 spent the next day busily in the Heligoland Bight. At first light eight Beaufighters (with nine of No. 489) attempted a reconnaissance in force but returned early because of heavy rain en route to the patrol area; paradoxically T/455, which did not receive the recall order, continued its patrol and sighted a large convoy near Heligoland but could not attack. Meanwhile at 5.45 a.m. a single aircraft set off on a special roving mission along the Dutch coast but saw nothing except two E-boats. Later at 1.10 p.m. another rover was sent to patrol off Norderney and this aircraft reported 2 armed trawlers, 3 unidentified small ships and 6 anchored vessels, including a tanker, at various points along the coast. Between 4.30 and 5.00 p.m. another four Beaufighters were dispatched to the Terschelling-Den Helder-Borkum areas for individual patrols. One made no sightings, two others reported large

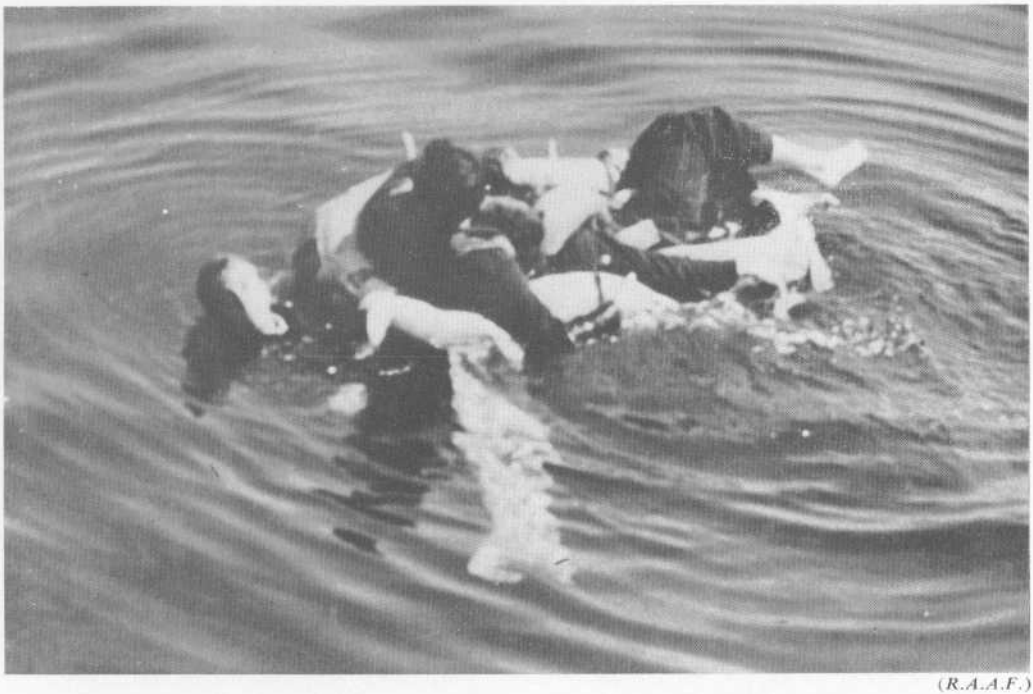
[8] The ballistics of the 25-lb armour-piercing rocket were such that it was found possible to adjust the gunsight, cannons and rocket guide rails so that in a dive of between 10 and 14 degrees, without alteration of the point of aim, the cannons were correctly harmonised with the gunsight for a range of 600-800 yards at which range the rockets would attain maximum velocity. Thus fire could be opened with cannon at up to 1,000 yards continuing to 600 yards when rockets were fired, and cannon attack could continue to point-blank range using the ship itself as a "splash target".

convoys stationary in defended areas at Den Helder and Borkum, while the fourth had to return early when its port engine failed. This last aircraft crash-landed at Langham and the starboard engine burst into flames, the fire quickly spreading to the mainplane. Davenport, who had been awaiting its return at the control tower, raced over to the crashed aircraft and, sitting astride the cockpit, pulled the pilot bodily out of his flying-boots (which had become entangled with the rudder controls) and thence out of the cockpit. The pilot sustained severe burns and Davenport was also injured when the burning mainplane collapsed under his weight.



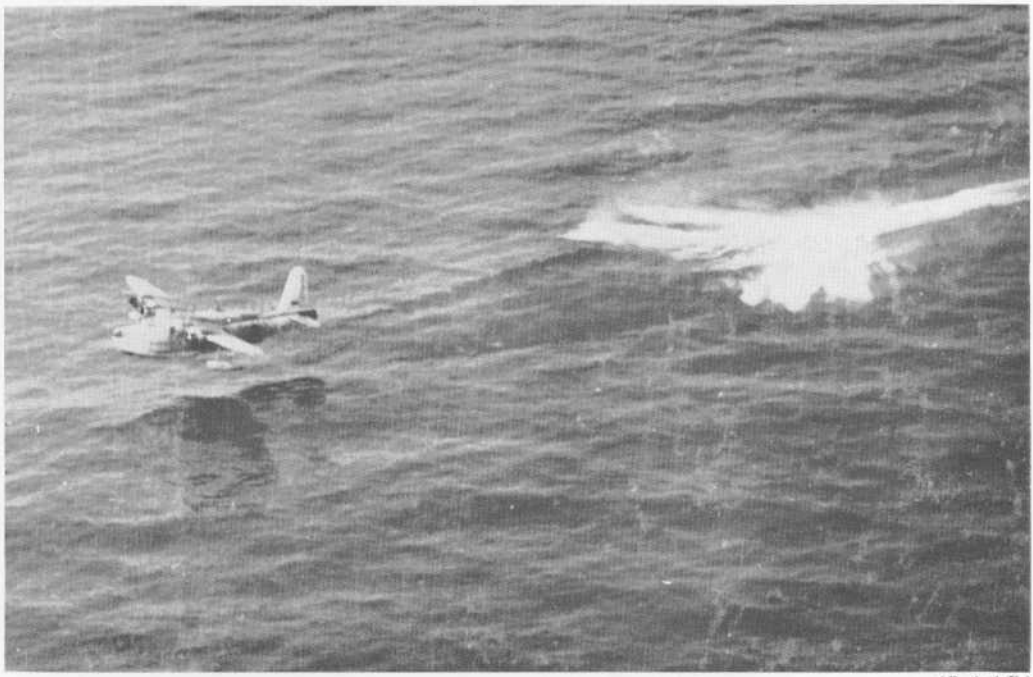
Wiggins led a two-wing strike to south Norway early on 10th September and the same evening No. 455 also joined in an armed patrol between Texel and Vlieland. No shipping was met on either sortie but C/455 and E/455 attacked a four-gun anti-aircraft post on the southern tip of Vlieland which had fired on the Beaufighters. An explosion followed by a large cloud of black smoke followed this cannon attack. The dearth of Norwegian targets was at last broken on the 11th when Wiggins was again leading both Langham and North Coates Wings. Four "M" class minesweepers were intercepted on a westerly course near Lister and although they turned towards the attacking aircraft and attempted to manoeuvre evasively at high speed all were hit by rockets and cannon fire while the leading ship was torpedoed. All the enemy ships were left on fire and two were apparently sinking. All the Beaufighters returned safely although U/455 had its starboard elevator almost shot away and was holed in the tail plane, wing tip, fuselage and mainplane, and B/455 was also damaged.

Inspired by their success off Lister, Beaufighter crews returned to the Dutch coast on 12th September in a very aggressive mood. The formation of 39 Beaufighters and attendant Mustangs ranged between Texel and Den Helder without finding any shipping at sea. A radio sighting report from a rover was received and then cancelled and another sighting turned out to be a sand-bank, but these false alarms merely served to increase the eagerness of all crews to attack. Finally the leader ordered an attack against enemy shipping at anchor in the apparent safety of Marsdiep Harbour. An uncompleted destroyer, four merchant ships and ten armed escorts were all fired on, the destroyer being sunk and at least three of the escorts suffering heavy damage. Flying Officer Sykes of No. 455 made an intrepid attack against the most seaward escort with eight



(*R.A.A.F.*)

Survivors of the Wellington of No. 172 Squadron R.A.F. which was shot down by a U-boat on the night of 27th August 1944 in the Inner Bay area. Next morning F-Lt W. B. Tilley of No. 10 Squadron, after landing in the open sea, rescued the three men.



(*R.A.A.F.*)

The aircraft taking off after the rescue. The risk attached to landing a Sunderland in the open sea is illustrated by the effect produced by the impact of the hull on the heavy swell.



(*R.A.A.F.*)

An Australian crew of No. 617 ("Dam Busters") Squadron R.A.F. dwarfed by the 22,000-lb "Grand Slam" bomb which was first used on 14th March 1945 on the Bielfeld viaduct in north-west Germany. *Left to right*: F-O's E. W. Weaver, R. P. Barry; F-Lt J. L. Sayers; F-O's V. L. Johnson, F. E. Wittmer.



(*R.A.A.F.*)

A Lancaster of No. 463 Squadron awaits yet another load of bombs for a daylight raid on German military targets in France.

rocket projectiles and cannon fire, and it was found on return to base that the metal cap and three feet of the trawler's mast complete with light and electrical fittings were embedded in the Beaufighter's nose. Sykes also poured cannon fire into two camouflaged hangars while other pilots had attacked shore targets such as a radar station barracks and several gun positions. The Australians were unanimous in the view that ship and shore-based flak was more intense and accurate than in any previous attack but, although from the whole force two aircraft were lost and nearly half the others damaged, the satisfaction of proving that shipping was not safe even in protected anchorages more than outweighed, for the crews concerned, the obvious dangers they had faced.

The next R.A.A.F. attack against shipping did not occur until 25th September and again involved the deliberate penetration of a well-protected anchorage—this time at Den Helder. The intervening fortnight was one of effort and experimentation but no success on the days when weather permitted operations. A normal evening reconnaissance in strength on 13th September and another late on the 16th found no shipping but caused a nervous reaction from guns at Wangerooge. Then, taking off in darkness at Langham, Nos. 455 and 489 formed up before dawn on 17th September over "Drem"[9] flame floats laid by a navigation aircraft off the Dutch coast and set course along the inner enemy coastal route to search for ships which might have attempted to make a night dash from one harbour to another. The only shipping seen was already at anchor. Another tactic was tried on the 18th when a mid-afternoon reconnaissance in force was made but outrider aircraft were sent ahead (about 15 minutes in time) to search for and report targets which would have insufficient time to seek refuge before the main force arrived. Unfortunately the only ships sighted lay at protected anchorages. Four days of adverse weather then interrupted operational flying, but when Flying Officer Whishaw[1] on rover duties on the afternoon of 23rd September reported shipping between Texel and Den Helder no fewer than five squadrons of Beaufighters were sent out as a striking force.

This large formation passed through the gap between Vlieland and Terschelling at 5.26 p.m. and, although under fire from shore batteries, conducted a figure-of-eight search in the Zuyder Zee. By 5.50 p.m. no suitable ship targets had been found and the Beaufighters turned for home, but during this withdrawal the opportunity was taken to strafe targets of opportunity. A radar station near Bergen aan Zee was attacked by three aircraft and they saw the aerial array collapse after hits with rockets. Flak towers, large buildings and another radio mast and a motor vehicle were among targets chosen by other R.A.A.F. pilots. Valuable as these secondary attacks against ground installations undoubtedly were in keeping

[9] The Drem system took its name from a proved method of night airfield control. In this application it was a circle of flame floats of two miles diameter dropped in a prearranged position by the navigation aircraft. Pilots arriving would orbit this marked area until it was light enough to join formation and proceed on patrol. Later the air-sea Warwick was often employed to lay the Drem markers and then remain as safety aircraft.

[1] F-Lt D. Whishaw, DFC, 408290; 455 Sqn. Farmer; of Carrick, Tas; b. Launceston, Tas, 9 Mar 1923.

a keen edge on offensive morale, the main task was attrition of enemy coastal shipping, and accordingly a similar strike at maximum strength was ordered against the same area two days later. Sixty-five Beaufighters including 12 of No. 455 reached Den Helder in mid-afternoon. The Australians alone claimed 61 rocket projectile and many cannon hits against the hull of a 3,000-ton merchant vessel, minesweepers, armed trawlers and tugs. Crews of aircraft briefed to subdue land-based flak had difficulty in pinpointing individual positions because of the intense barrage which greeted the Beaufighters and three aircraft were lost and 17 damaged during this raid. No. 455 lost Flying Officer Cock, one of its most experienced pilots, while five other R.A.A.F. aircraft were very badly damaged.

Rover aircraft continued to patrol the Dutch and German coasts but targets became increasingly difficult to find in daylight. Even on the rare occasions when a ship was sighted there was insufficient time to mount a wing strike. The more expensive method of flying reconnaissances in force so that the striking force would be in the area if a sighting occurred was also tried but produced no better results. During October Coastal Command failed to discover a single enemy cargo vessel moving by day in Dutch or German waters and negative results were obtained from patrols along the west coast of Denmark. In general the position was satisfactory in that enemy coastal traffic had obviously been halted at the very time when the Swedish Government's virtual ban on trading by its merchant fleet with north German ports made it imperative for Germany to use its own ships to a maximum degree.[2] It was felt, however, that direct as well as indirect pressure must still be exerted. Successful as had been the daring exploit at Den Helder on 25th September it could not be repeated frequently without danger of severe losses of aircraft and crews. Accordingly Coastal Command turned to the problem of night attacks against convoys or individual ships which moved from port to port under cover of darkness. The handling of large formations of high-speed aircraft at night was an almost insoluble problem, but it was considered that by providing radar-equipped Wellingtons which would search for targets and illuminate them with flares relatively small numbers of Beaufighters could operate at night with rockets and torpedoes.

It was in such circumstances that No. 455 fought its next action. Eight Beaufighters were sent out in the early hours of 6th October on rover duties between the Hook of Holland and Den Helder. A sighting report was intercepted at 2.17 a.m. indicating that a convoy was at sea off the Hook. Only three of the Beaufighters found the target which consisted of at least 10 ships. Four apparent underwater hits with rockets were scored against the leading "M" class minesweeper and great sheets of flame came from the vessel. Other direct hits but with less spectacular results were observed on another minesweeper at the rear of the convoy. No further opportunity arose until six R.A.A.F. Beaufighters during a dawn

[2] In August 1944 the Swedish Government announced that it would no longer insure ships trading to German ports. This caused the loss of approximately 25 per cent of German import cargo capacity.

sweep on the 15th sighted and attacked four armed coasters near Juist. Later on the same day the squadron flew in a two-wing strike against Schillig Roads but the only targets found were four small vessels near Wangerooge. Wiggins,[3] who was leading the combined force, ordered the North Coates squadrons to attack, reserving the Langham Wing for other possible targets which, however, did not eventuate.

On 20th October No. 455 was ordered to move to Dallachy in Morayshire, Scotland, the move to be completed within four days. Despite the difficulties of getting an advance party away during the weekend and the limited accommodation and facilities at Dallachy[4] the unit was again ready for operations by 27th October when 10 Beaufighters were sent to patrol off Stadlandet. This move to No. 18 Group for full-time operations in Norwegian waters was not unexpected. The Frisian coast had manifestly ceased to be a happy hunting ground and could safely be left to the North Coates Wing which remained in No. 16 Group. At the same time the Russian offensive in north Norway and the difficult military situation on both the Western and Eastern fronts on the Continent forced the Germans to start transferring troops and equipment from Norway to Germany. It was considered that if the strike wings could sink or halt enemy shipping on the Norwegian route, which now carried Germany's only import traffic as well as trooping activity, they would seriously embarrass the enemy. In addition to the strike wing from Langham another, formed from Mosquito squadrons no longer required for duty in No. 19 Group, also moved to Banff to strengthen the watch on the Norwegian coast. The renewed emphasis on Norwegian operations was demonstrated when, on 23rd October, Davenport, a veteran of the 1942-43 campaign in those waters and a pre-eminent wing leader, was posted to Headquarters No. 18 Group as a special tactical adviser on anti-shipping matters.

During October, largely because of lack of targets and the move to Dallachy, No. 455 flew only 313 hours on patrol,[5] but, despite the crowded conditions at their new base and the serious deterioration of the weather, with the onset of winter the R.A.A.F. crews were able to increase this total to 422 during November 1944. There was, however, a disappointing lack of day targets because the operations of the Banff Wing had already forced the enemy to adopt a policy of sailing only at night and lying up by day in deep precipitous fiords where they were almost immune from attack. Several different expedients were tried by the strike wings. Photographic reconnaissance aircraft and rovers from the Mosquito and Beaufighter wings were out nearly every day covering the whole coastline from the Skagerrak to as far north as Trondheim so that a fairly firm Intelligence picture was maintained of shipping along the coast: the main problem was to catch ships in open water where an attack could be made. One method was illustrated on 1st November

[3] On 5th October Wiggins had been promoted as "Wing Commander Flying" with Langham Wing. Squadron Leader J. M. Pilcher replaced him as flight commander with No. 455 Squadron.

[4] This station was designed to operate two squadrons: it was suddenly required to accommodate four and a half.

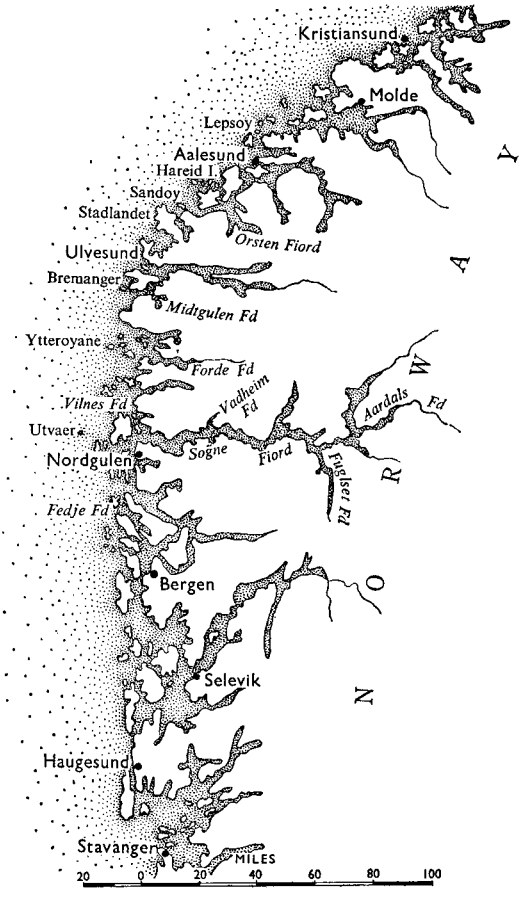
[5] Compared with 503 in June, 548 in July, 411 in August and 636 in September.

when Milson led Nos. 455 and 489 on an armed patrol between Obrestad and Kristiansand. The Beaufighters took off in darkness and flew nearly 300 miles across the sea to reassemble over a Drem flare circle. Two aircraft collided and crashed into the sea. The others moved off as soon as it was light enough to make a visual search along the coast but no shipping was found.

Another tactic which No. 455 quickly came to appreciate was the attachment of "outriders" to daylight patrols. Normally two Mosquito aircraft manned by experienced crews would fly ahead of the main force and penetrate the deeply-indented fiords for shipping which the main formations would otherwise fail to discover. Often Norwegian crews of No. 333 Squadron, whose detailed knowledge of the intricate coastline made it possible for them to provide very comprehensive reports, were used, but the Beaufighter squadrons also trained their own outriders. Again on 14th November the Beaufighters transferred temporarily to Sumburgh in the Shetlands from which advanced base they flew two patrols between Aalesund and Stadlandet, an area where the enemy might not expect them. It became clear, however, both to planning staffs and to the crews themselves that enemy shipping would have to be sought out and attacked in its daylight refuges. In principle this was the same decision reached in regard to the Dutch and German coasts but the circumstances were very different. In the Frisian area the coasts were low-lying and enemy shipping was protected by large concentrations of anti-aircraft guns rather than by geographical features. The Norwegian coastline was rugged and the mountain tops of the fiords were frequently veiled in cloud. Visibility was poor in winter months, making formation flying difficult, and there was always the danger of running into cliffs and high mountains.

The main enemy day hideouts were quickly identified and it was at one of them—Midtgulen Fiord—that on 8th November the Australians made their only attack that month. Midtgulen is only 800 yards wide at its most open point and is surrounded on three sides by precipitous cliffs rising to 2,500 feet. Deep water enabled ships to be anchored almost against the side of these cliffs and attack was possible from one direction only. The narrowness of the fiord permitted a maximum of three aircraft to attack simultaneously which meant that all the ships' guns could concentrate on these, whereas in normal open sea operations 20 or 30 aircraft would be dividing the attention of the shipborne gunners and hitting them at the same time. In the outstanding exploit of 8th November the outrider P/333 had already investigated several fiords between Utvaer and Bremanger before reporting two medium-sized ships and three coasters in Midtgulen. The Norwegian pilot then joined the Beaufighters and led them over the mountains to a position from which they could attack. Six R.A.A.F. and six R.A.F. Beaufighters (of No. 404) attacked in waves with cannon and rockets scoring 30 major hits on one merchant ship and four on the other, while 10 Beaufighters of No. 144 attacked the coasters with cannon fire. It was learnt later that the *Aquila* (3,530 tons) and the *Helga Ferdinand* (2,566 tons) both sank as a result of this raid.

On many days it would have been suicidal to attempt such an operation and many sorties were curtailed or abandoned because visibility permitted neither efficient search nor attack. Thus on 25th November 42 Beaufighters and 39 Mosquitos set off to attack shipping previously reported at Haugesund but could not find their targets. In fact visibility was so bad that two R.A.A.F. Beaufighters collided while making a hard turn to starboard and the port propeller of Flying Officer Sykes' Beaufighter cut into the cupola of its formation neighbour, knocking off the navigator's flying-helmet but fortunately not injuring him. The blades of Sykes' propeller were damaged and the other aircraft had a huge rent in the fuselage but both returned safely to Dallachy.



After nearly a month of negative patrols and immediately after a period of five days during which no flying at all was possible No. 455 scored a brilliant success on 5th December. Thirteen R.A.A.F. Beaufighters with five of No. 489 Squadron were sent out. Flight Lieutenant Whishaw acted as outrider and reached the Norwegian coast 10 minutes ahead of the main formation. He saw several ships in Nordgulen but considered their position unsuitable for attack.[6] Later he reported shipping in Orsten Fiord and Squadron Leader J. M. Pilcher led an immediate attack which scored 36 rocket hits on a vessel of 2,500 tons which was left blazing fiercely. A smaller vessel was also attacked in Selevik; both ships were confirmed sunk by Intelligence sources. It was not, however, a bloodless victory as the Beaufighter piloted by Flying Officer Hakewill[7] was shot down in flames during the attack and another piloted by Pilot Officer

[6] In fact the Banff Wing (34 Mosquitos) did attack these ships the same day, setting two ships on fire.

[7] F-O J. A. Hakewill, 417747. 2/1 Ord Fd Park AIF; 455 Sqn. Schoolteacher; of Mildura, Vic; b. Mildura, 10 Apr 1917. Killed in action 5 Dec 1944.

Winter[8] was hit in the starboard engine by a shell. With all instruments out of action Winter coaxed his aircraft to within 40 miles of the Shetland Isles when he was forced to alight on the sea and take to a dinghy; he was rescued three hours later by an air-sea rescue launch. A third aircraft developed engine trouble during the return flight and crash-landed at Sumburgh.

On 6th December the Australians found three ships near Molde but could not attack because of the narrowness of the fiord and unexpectedly heavy anti-aircraft defences. Next day when both the Banff and Dallachy Wings were out together, enemy fighters attacked the formation but were driven off by Mustang fighters. On the 9th seven R.A.A.F. Beaufighters were in a force of 23 which were led by the outrider to a 2,000-ton unescorted cargo ship on a southerly course near Vilnes Fiord. The vessel appeared to have a deck cargo of wooden crates which blazed furiously after two explosions had resulted from an estimated 60 rocket hits. The ship was last seen heading for shore, its stern section glowing red hot.

By this time it was normal practice for the strike wings operating off the Norwegian coast to be accompanied not only by long-range Mustangs for protection against air attack but also one or two Warwick aircraft carrying airborne lifeboats. Both of these insurance expedients emphasised a situation, gladly accepted by crews, that anti-shipping successes could be attained only at considerable risk as the enemy attempted by all means to break the stranglehold which the strike wings were putting on his cargo traffic. But although the Australians, despite weather limitations, increased their tally of operational hours to 526 during December, they found no more targets. Rover patrols during moonlight nights, surprise dawn sweeps using the Drem assembly technique and fearless penetration of fiords whenever visibility permitted failed to discover shipping other than a hospital ship (13th December) and four neutral ships (31st December) none of which could be attacked.

Coastal Command began operations in 1945 with its tasks already well defined. Stubborn enemy resistance on land implied that the war would last at least several months during which the new prefabricated and closed-cycle submarines under construction in many yards and already fitting out in Baltic training areas were certain to reinforce the existing *Schnorkel*-equipped vessels at sea. Midget submarines had already operated in the Scheldt estuary and posed a continuing threat to Antwerp, the major Allied forward supply port. As a corollary to defeating an enemy threat to Allied shipping, which was assessed as extremely grave, the Command desired to maintain and if possible expand its own operations against enemy shipping. To prosecute these two main tasks (and excluding 4 photo-reconnaissance, 7 meteorological and 4 air-sea rescue units) the Command disposed approximately 900 aircraft in 48 squadrons. This represented an addition of 6 squadrons during 1944 and urgent attempts were still being made to achieve further expansion. From M.A.A.F. two Wellington units had been

[8] P-O A. E. Winter, 425997; 455 Sqn. Sawmill hand; of Kingaroy, Qld; b. Kingaroy, 26 Jun 1917. Killed in action 10 Jan 1945.

acquired late in 1944, and after re-equipping and re-training in anti-submarine techniques they began operations in February 1945. As mentioned earlier, No. 459 Squadron R.A.A.F. was also posted from the Middle East and reached Chivenor during March 1945 for re-equipment with Leigh-light Wellingtons but the unit was disbanded in April without resuming operational flying.[9] Two American Liberator units and one Catalina unit were procured from areas as far distant as Brazil and the Moroccan sea frontier, while the projected transfer of a number of American Navy blimps to United Kingdom coastal waters was cancelled only because of the end of the war in Europe.

With these resources Coastal Command between 1st January and 8th May 1945 flew approximately 10,000 sorties aggregating 90,000 hours on patrol around convoys or on sweeps mainly close inshore to the British Isles. Most of this effort was purely defensive in character and supplementary to that of naval escort groups whose underwater detection gear was far more efficient in finding and destroying U-boats lurking in focal shipping areas. Towards the end of this period special circumstances arising from the general enemy collapse did provide new opportunities for aircraft to attack and sink U-boats fleeing from the Baltic to Norway, but this was no true measure of the delicate balance which generally prevailed in the struggle of aircraft against submarines. By persistent patrols aircraft were able to limit the depredations of U-boats to a degree which did not imperil Allied supply and military expansion programs. Aircraft could not prevent the loss of individual ships even within sight of Coastal Command bases, and the ratio of sinkings to U-boats on patrol rose almost to the same level as in their heyday in 1943. The number of U-boats at sea was controlled by factors such as Bomber Command attacks on ports and communications, loss of Baltic training grounds, and teething troubles with new submarine types, as well as by Coastal Command's own efforts. Had the war on land gone differently Doenitz' faith in his U-boat force as a war-winning factor might have been partially justified. There were very great fears during January and February 1945 that U-boats would be able to make a major break-through and once again menace trans-Atlantic supply routes, but Coastal Command and naval forces were able to cope with this threat until the U-boat force, undefeated but never fully committed, could no longer prevent the general collapse of Germany.

The two R.A.A.F. Sunderland flying-boat squadrons remained throughout this period at their respective bases at Mount Batten and Pembroke Dock under No. 19 Group control. Crews trained assiduously and applied themselves with spirit to operational patrols but could claim no positive results. During January when a group of U-boats daringly penetrated into the Irish Sea and sank 10 ships between Milford Haven and the Clyde No. 10 mounted 55 patrols and No. 461 36 but saw nothing. This was

[9] It was current practice in MAAF to post "time-expired" men to units returning to the UK and to retain in the Mediterranean tradesmen needed by operational units. No. 459 arrived in the UK as a collection of ill-matched ground crews. As previously it had taken over six months to reshape No. 14 (which had suffered from the same process) into a fighting unit, No. 459 was disbanded.

the first month since April 1942 when Coastal Command had failed to sink (or share with naval forces in sinking) any U-boat.[1] There was a greater number of enemy submarines at sea during February mainly operating in the Irish Sea and the South-Western Approaches but once again No. 10 flew 58 and No. 461 20 negative patrols. On 3rd February F/10 attacked a suspicious wake which turned out to be a whale and on the 20th two aircraft cooperated with an escort group which was attacking a promising underwater contact near the Scilly Isles but without success. The effort of No. 461 which had lost three Sunderlands during a gale at Pembroke Dock on 18th January was further reduced by adverse sea or weather which prevented or curtailed sorties, while No. 10 also lost an aircraft while taking off in marginal conditions on the night of 9th February.

Both Wing Commander Cooke of No. 10 and Wing Commander Oldham[2] (who took over command of No. 461 from Hampshire on 8th February) found that there was no need to drive their willing aircrews who were intensely keen to fly long patient patrols in any weather. During March No. 10 completed training for night anti U-boat operations but was able at the same time to make 60 operational patrols. On 5th March the crew of G/10 sighted a *Schnorkel* in the Channel and, although they were unable to attack with depth-charges, the position was marked and an escort group homed to keep the enemy pinned down. On the 11th the same crew sighted survivors from *U681* which had just been sunk by an American Liberator, but resumed their planned patrol as other aircraft were already keeping watch. No. 461 also found its March patrols more heartening. U/461 on 2nd March reported a disappearing contact. On the 8th Flight Lieutenant Prentice[3] dropped two depth-charges on a smoke cloud thought to be from a *Schnorkel,* and the same crew on 12th March attacked what appeared to be a submarine conning tower, but which later proved to be a protruding part of a wrecked ship. On the 9th, 20th and 23rd other possible *Schnorkels* were reported by crews of No. 461 and elaborate follow-up action was taken by air or naval forces.

April was a month of growing confidence for the R.A.A.F. crews. Sono buoy equipment was at last available for use by Sunderland squadrons and gave crews some opportunity to check the accuracy of their own visual sightings. Shipping casualties continued but were steady and had by no means reached dangerous levels; weather conditions on patrol and at base were vastly improved and everywhere the general tide of war was flowing rapidly against Germany. No. 461 Squadron during 66 patrols, its highest effort since August 1944, on four occasions laid sono buoy patterns at the position of apparent *Schnorkel* smoke sightings but failed to find

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[1] Of 14 U-boats lost that month 5 were sunk (2 in the Irish Sea) by naval forces, 4 were destroyed during air raids, 3 by unknown causes (one possibly by a Russian mine), one was a victim of a mine and one sank as a result of a collision in the Baltic.

[2] W Cdr R. R. Oldham, 406275. 201, 202 and 228 Sqns RAF, 461 Sqn; comd 461 Sqn 1945. Bank clerk; of Cottesloe, WA; b. Cottesloe, 3 Mar 1914.

[3] F-Lt R. H. Prentice, 420265; 461 Sqn. Bank clerk; of Cremorne, NSW; b. North Sydney, 1 Apr 1920.

any confirmation of the presence of a submarine.[4] No. 10 Squadron also flew 58 patrols including one on 4th April when F/10 sighted a periscope and *Schnorkel* which were lost in a spume-tossed sea and general poor visibility before any attack could be made.

Both Australian squadrons sensed a lessening of tension in the war at sea when aircraft were allotted to special reconnaissance and escort duties with naval forces operating off the French coast against German pockets of resistance such as the Ile d'Oleron. By the end of the month crews were briefed in the action to be taken in the event of U-boats offering to surrender either before or after an armistice had been signed. Nevertheless May began with all units of Coastal Command straining every nerve to dispel once and for all the menace of submarine attack. On 4th May A/10 dropped one depth-charge on a bubbling oil slick sighted in the English Channel.

Even after the formal German surrender on 8th May Coastal Command continued armed patrols throughout the month (Nos. 10 and 461 each flying 51 sorties) because, although the Armistice terms made it obligatory for U-boats to surrender, it was considered that individual submarines captained by fanatics might disregard the official orders and either attempt piratical attacks on Allied shipping or seek to escape to neutral countries. No hostile acts occurred and by 31st May no fewer than 49 U-boats had surrendered at sea. On 10th May the crew of N/461 photographed a surfaced U-boat flying the black surrender flag but already escorted by aircraft. Next day two submarines were found by K/461 and one of these was escorted until naval vessels arrived. Thereafter patrols were without incident, and on 4th June No. 461 Squadron was withdrawn from service and disbanded. No. 10 ceased operations on 1st June and on the 20th ceased duty with Coastal Command. However, as a permanent unit of the R.A.A.F. it did not disband but continued training until plans for its return to a base in Australia could be made.

Only a few of the R.A.A.F. aircrew dispersed on other units found their operations rewarded by a chance to attack a submarine. In Iceland No. 53 Squadron, re-equipped with Liberators Mark VIII, and despite blizzards during February and March, ceaselessly patrolled the mid-Atlantic northern convoy route. No. 59, although its patrols during January were confined to the Irish Sea, then operated mainly in the U-boat transit area between Iceland and Scotland. Several attacks resulted from visual or sono buoy indications of the possible presence of a submarine and, although some of these were undoubtedly false targets, the general keenness to hit at any opportunity was a basic factor in the ability of Coastal Command to prevent the enemy seizing the initiative. Flight Lieutenant Francis[5] attacked an oil slick on 26th February in the Irish Sea after laying a sono buoy

[4] It took at least six months of actual use and synthetic training to ensure efficient use of sono buoys. There were sometimes examples of "wishful listening" when the ear appeared to find targets which were not present and conversely targets might be present but could not be identified without a very sensitive appreciation of sound discrimination.

[5] Sqn Ldr J. M. Francis, 404810. 86, 224 and 59 Sqns RAF. Clerk; of Brisbane; b. Brisbane, 27 Aug 1917.

pattern, and he made another attack to the west of Ireland on 3rd March; in neither case, however, was there any confirmation of damage.

No. 120 Squadron which operated in the same area sank two U-boats and on each occasion one Australian was in the crew concerned.[6] This squadron had one crew captained by Flight Lieutenant Pfeiffer[7] which was almost entirely composed of R.A.A.F. men. On 22nd February it dropped one sono buoy pattern at 12.30 p.m. with negative results, but after four hours' patient search sighted a *Schnorkel* and straddled its position with six depth-charges and then laid a second sono buoy pattern which gave a positive indication that a U-boat was present, was possibly damaged and appeared to be circling erratically. From Limavady R.A.A.F. navigators in crews of No. 172 (Leigh-light Wellington) Squadron joined in three attacks between 11th January and 8th April against U-boats at night but on several other units many Australians flew regularly without finding any incident in the transit areas.

As a corollary to its mainly defensive policy of escort and patrol in areas where shipping was threatened Coastal Command determined during February 1945 to attack U-boats working-up in their Baltic training areas. From Leuchars on 3rd-4th February seven Liberators of No. 206 and eight of No. 547 set off in atrocious weather to patrol around the island of Bornholm. Two Liberators were forced to abandon the operation, seven including that piloted by Flight Lieutenant Fisher[8] of No. 206 covered the patrol without finding a target, while the remainder made depth-charge attacks against four U-boats and two surface vessels. Flying Officer Atwill,[9] the navigator of E/547, gained radar contact at a range of 15 miles and homed on to a fully-surfaced U-boat which did not dive even after the Liberator made one abortive run and which was then straddled by depth-charges aft of the conning tower. This type of operation obviously gave the best chance of finding surfaced submarines (the only optimum targets for aircraft attack) and it was repeated, this time by Nos. 311 (Czech) and 547 Squadrons during the moon period in March. On 23rd-24th March seven U-boats and six ships were attacked near Bornholm, one crew containing Australians (E/547) achieving a straddle and another (H/547) a slight overshoot against submarines. Three nights later the same squadrons attacked 15 vessels and 5 submarines near Bornholm, Atwill bombing a 1,500-ton tanker and Flying Officer Nairn[1] straddling a minesweeper and then scoring one direct hit on the bows of a destroyer. Apart from these deep penetrations over enemy waters No. 547 made several attacks in the Skagerrak and Kattegat. On 25th-26th February

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[6] M/120 sank *U296* on 22nd March north of Ireland and Q/120 sank *U1017* on 29th April north-west of Ireland.

[7] F-Lt C. G. Pfeiffer, 413793; 120 Sqn RAF. Bank clerk; of Hornsby, NSW; b. Hornsby, 19 Apr 1918.

[8] F-Lt E. V. Fisher, DFC, 421798; 206 Sqn RAF. Bank clerk; of Griffith, NSW; b. Arncliffe, NSW, 9 Nov 1918.

[9] F-O J. A. Atwill, 423036; 547 Sqn RAF. Bank clerk; of Strathfield, NSW; b. Grafton, NSW, 18 Nov 1922.

[1] F-Lt A. R. Nairn, 432393; 547 Sqn RAF. Bank clerk; of Ramsgate, NSW; b. Somerville, Vic, 18 Jan 1923.

Flying Officer Boxall,[2] after a long night patrol during which he failed to discover any submarines but repeatedly had to evade night fighters, dropped 10 depth-charges against a 5,000-ton tanker. On 5th May Flying Officer Howatson[3] a relative newcomer to the unit was shot down in flames after making two attacks against three U-boats proceeding in company in the Kattegat.

The greatest successes against U-boats were scored paradoxically not by the patient, trained anti-submarine units but by the anti-shipping strike units which could safely penetrate the Baltic exercise grounds in daylight. On 9th April the Banff Wing of Mosquitos armed with rocket projectiles surprised and sank *U804, U843* and *U1065* in the Skagerrak. On 19th April they sank *U251,* and on 2nd May *U2359.* By this time German submarines were fleeing to Norwegian bases as fast as possible and surfaced targets were plentiful. Aircraft of Second T.A.F. joined in the hunt and sank *U1007* on 2nd May and *U3030, U3032* and *U2540* at the southern end of the Kattegat on 3rd May. In the same area Beaufighters of Nos. 236 and 254 Squadrons sank *U2524* on 3rd May and *U236, U393, U2338* and *U2503* on 4th May. Liberators sank four U-boats in the Kattegat on 5th May and two more on the 6th. The final victim of Coastal Command was *U320* sunk on 7th May by a Catalina of No. 210 Squadron to the east of the Shetland Islands.

The struggle against German submarines thus ended in a welter of apparent success after many long months of patient and apparently unavailing effort. The holocaust at the end, satisfying as it was statistically, merely proved again what Coastal Command had demonstrated during 1943—that a surfaced U-boat could not withstand air attack. Coastal Command had failed to prove that it could deal convincingly with a true submarine.

In its other main sphere of action against enemy shipping resources Coastal Command was favoured by aircraft adequate both in numbers and performance, adequate striking weapons, well-trained crews, and good tactics. Throughout the final months of the war the attrition of enemy shipping went on remorselessly, governed only by the weather. In addition to ships sunk or disabled, the virtual inability of the enemy to move shipping at all except by stealthy night dashes or under cover of storms represented a tremendous invisible loss of cargo-carrying potential at the very moment when German resources in all fields were under tremendous strain. Valuable as was the material success of the strike wings, the effect on the general morale of Coastal Command crews on anti-shipping and anti-submarine units alike was of incalculable worth. Every ship sunk was a symbol of approaching final victory; anti U-boat crews were strengthened in spirit for their unending watch for an unseen adversary while anti-shipping crews vied with each other in determination and daring to seek out enemy targets protected by the most formidable natural obstacles or fortified areas.

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[2] F-Lt C. J. Boxall, 419633; 547 Sqn RAF. Carpenter; of Oakleigh, Vic; b. Armadale, Vic, 15 Dec 1916.

[3] F-O J. L. Howatson, 435216; 547 Sqn RAF. Clerk; of Brisbane; b. Brisbane, 19 Sep 1920. Killed in action 5 May 1945.

No. 455 Squadron was weather-bound at Dallachy most of the first week of January 1945 but on the 6th Wing Commander Milson led a small strike force which claimed hits against a self-propelled oil-burning barge in Fedje Fiord. Other targets were seen anchored close inshore but could not be attacked as a heavy snow-storm developed. On 8th January six R.A.A.F. Beaufighters attacked some small ships south of Bergen seriously damaging a 600-ton vessel and leaving a tug and its barge enveloped in smoke and steam. Squadron Leader Pilcher next day led eight R.A.A.F. and four R.A.F. Beaufighters in a copy-book attack which scored some 40 rocket hits against the Norwegian ship *Sirius* (1,000 tons) which was fast in the ice in Fuglset Fiord. Fire broke out in the vessel which heeled over until her decks were awash and she subsequently sank.

Taking advantage of a good spell of weather No. 455 was out again on 10th January and set on fire a trawler-type naval auxiliary and an "M" class minesweeper both of which were sighted and attacked near Lepsoy. Two Beaufighters, including that piloted by Pilot Officer Winter, were shot down during this attack. A much larger force drawn from the Dallachy and Banff Wings set out on 11th January led by Flight Lieutenant McColl[4] for a strike against Flekke Fiord, west of Kristiansand, but no vessels were seen except Swedish fishing boats. On making landfall on the Norwegian coast, however, the force was met by heavy flak from positions near Lister and was also attacked by seven Me-109's and one or more FW-190's. There were no Mustang fighters[5] with the force but the Banff Mosquitos shot down three enemy fighters for the loss of one Beaufighter, one Mosquito and one of the accompanying air-sea rescue Warwick aircraft.

After this week of excitement almost a month passed before No. 455 fought a major action on 9th February. Milson was leading Nos. 144, 404 and 455 on patrol between Sandoy and Bremanger at a height of 800 feet when a nervous reaction from enemy batteries near Forde Fiord indicated that shipping might be hiding there. The formation wheeled and sighted a *Narvik*-class destroyer and nine other ships stationary amid floating ice. Milson ordered an attack down fiord but had to cancel this because of the position of the larger targets and instead he instructed his force to attack in small relays up fiord against an intense flak barrage. The destroyer and two naval auxiliaries were damaged but nine Beaufighters were shot down by flak or by enemy fighters which arrived while the ships were under attack.[6]

Three R.A.A.F. Beaufighters sent out with a small force on moonlight roving duties on 26th February claimed several hits on one merchant

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[4] F-Lt R. C. McColl, DFC, 413227; 455 Sqn. Farm hand; of Koorawatha, NSW; b. Cowra, NSW, 27 Oct 1918.

[5] In January 1945 Coastal Command asked for and in February received a second Mustang fighter squadron to cover shipping strikes in this area.

[6] No. 455 lost two crews including that of Flight Lieutenant McColl who had shown great ability as an attacking pilot. Another crew making its first operational flight showed calm efficiency and good airmanship when they flew back to base after the pilot, Flying Officer H. R. Spink, had been wounded in the arm and chest and his navigator in one leg.

ship and one escort vessel near Mandal. On 8th March the Dallachy Wing returned to Midtgulen Fiord and damaged one merchant ship (4,124 tons) and two escorts hiding in that fastness, while on the 24th a daring attack in bad visibility against the defended harbour of Egersund damaged two cargo ships and a large trawler. In each of these attacks No. 455 lost one aircraft and had others damaged. During the month a series of attacks was made with Admiralty approval on certain lighthouses along the Norwegian coast in an attempt to force the enemy to sail by day and thus provide less difficult targets for the Beaufighters. This policy of attacking navigational aids was quickly abandoned in April when the return of better weather, the ingenuity of strike force leaders, and frantic enemy attempts to move shipping, provided a spate of opportunities.

The R.A.A.F. Beaufighters began April with an abortive attack against Egersund on the 3rd but next day they scored two wet and two dry hits on a merchantman at Aardals Fiord. Sykes was badly injured during this sortie and two Beaufighters were lost on 5th April near Hareid Island when the Dallachy Wing was attacked by fighters. Two merchant ships,[7] one escort vessel and a tug were damaged in Vadheim Fiord on 7th April but on this occasion the Australians claimed no hits. Fighters again attempted to prevent this attack and Warrant Officer Murray[8] was attacked by six FW-190's but he managed to crash-land safely at Dallachy. Fedje Fiord was the scene of a spirited attack against a stationary convoy well protected by guns on 11th April during which a minesweeper was sunk and one ship left on fire. Three days later memories of the *Altmark* were revived when the Dallachy Wing penetrated Jossing Fiord to attack the depot ship *Adolf Luderitz*, a tanker, two minesweepers and a U-boat, hits being claimed on all vessels. Four ships were attacked with unobserved results in Ulvesund Fiord on 22nd April; the *Ingerseks* (4,969 tons) was left listing and on fire in Sogne Fiord on 23rd and two more ships were left smoking in Fedje Fiord on 26th April.

Fedje Fiord proved to be No. 455 Squadron's last action in Norwegian waters. Patrols were continued until 3rd May when aircraft and crews including ground staff moved to Thornaby to enable them to attack shipping attempting to flee from the Baltic. The Beaufighters went out in force the same day to patrol Kiel Bay and the Great Belt and the Australians left two minesweepers blazing from stem to stern while No. 489 Squadron caused serious damage to the tanker *Taifun* (6,405 tons). On 7th May Coastal Command issued an order to discontinue attacks against enemy shipping.

In less spectacular fashion than the strike wings the Halifax night anti-shipping units hammered away at enemy shipping in the Skagerrak. Australian aircrew with No. 58 Squadron had some part in nine attacks against anchorages or ships at sea during January 1945. This rose to 16 attacks during February of which the most notable was on the 22nd when

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[7] The *Oldenburgh* (4,595 tons) sank as a result of this attack.

[8] F-O I. A. F. Murray, 426285. 66 and 455 Sqns. Jackeroo; of Bell, Qld; b. Toowoomba, Qld, 19 Nov 1921.

Flying Officer Faneco homed on a radar contact to find two medium-sized ships steaming on an easterly course at 10 knots in the Skagerrak. He attacked the larger vessel (4,000 tons) and scored one direct hit with a 500-lb bomb on the stern. The vessel slowed and then stopped, giving off clouds of dense black smoke. This was Faneco's third attack that month. March was a record month for No. 58 with 55 attacks followed in April by 44 attacks against the intensive enemy traffic attempting to withdraw troops and equipment from south Norway to Germany. No. 502 Squadron was equally active against the same targets and, although there were far fewer Australians with this unit, individuals were concerned in over 50 attacks made between 1st January and 3rd May 1945.

Twelve of these attacks were made by a crew in which Flying Officer Lucy[9] served as an outstanding navigator and bomb aimer and included the sinking on 20th-21st February of a 6,000-ton vessel in convoy 40 miles east of Kristiansand. On 2nd March Lucy's crew also bombed and set on fire the *Isar* (9,026 tons), and during the late evening of 6th March also scored a direct hit on a 3,000-ton vessel near Homborsund.

After 3rd May both Nos. 58 and 502 reverted to anti-submarine duties and to unarmed reconnaissances to assess the volume of shipping fleeing from the eastern Baltic area so that it could be directed to control points. As with most of the Beaufighter units, the squadrons disbanded on 25th May, all Australians being posted to holding units to await repatriation.

There were also during the last year of the war in Europe nearly 150 R.A.A.F. aircrew members serving with photographic reconnaissance, meteorological and air-sea rescue units of Coastal Command. These functions were vital to the entire air effort and demanded high qualities of patience and accuracy in navigation. Photo reconnaissance and air-sea rescue crews often had to enter heavily-defended enemy areas while the meteorological crews by the very nature of their task were required to fly in extremely adverse conditions. Very seldom were their exploits publicised as were those of aircrew on offensive units; they themselves, similarly to men engaged on training duties, sought no limelight and were satisfied that their apparently routine service was in fact an essential contribution. Perhaps the finest measure of this contribution was the amount of work which they were called upon to perform. During 1945 photographic reconnaissance squadrons flew 1,629 sorties (5,841 hours), meteorological units 2,905 sorties (12,806 hours) and air-sea rescue units 1,513 sorties (6,825 hours). This total of 6,047 sorties (25,472 hours) by the three ancillary types of flying support squadrons exceeded the whole anti-shipping effort (5,700 sorties) in the same period.

[9] F-O J. P. Lucy, DFC, 414868. 489 Sqn RNZAF, 455 Sqn; 228 and 502 Sqns RAF. Schoolteacher; of Toowoomba, Qld; b. Toowoomba, 1 Apr 1917.

CHAPTER 16

THE ARDENNES OFFENSIVE: THE BATTLE OF THE BULGE

EARLY in December 1944 Allied military leaders, although faced with atrocious winter weather which had set in early and was gloomily described as the worst for 50 years, were optimistic that Germany would soon collapse under pressure from both Western and Eastern fronts. General Montgomery, with his supply line through Antwerp now secure, was actively planning a full-scale offensive against the Rhineland to begin on 12th January 1945. Bradley was preparing to seize the Roer dams before exploiting gains already made in the hard, slogging battles of the drive to the Rhine. General Patton, who had bulldozed his way into Metz on 26th November, was authorised by General Eisenhower to make one further attempt to capture the Saar area before the end of the year. All were convinced that the enemy, despite his dogged and at times brilliant defensive successes at Arnhem, Aachen and the Scheldt, which had frustrated previous Allied hopes of a late autumn victory, was quite unable to stage any major counter-offensive because the Germans lacked reserves, equipment and petrol. Air force leaders agreed that the oil, transport and area bombing offensives had badly affected both the strength and mobility of German armies while the *Luftwaffe,* increasingly committed but with apparently diminishing effectiveness to purely defensive tasks, was quite incapable of supporting an offensive.

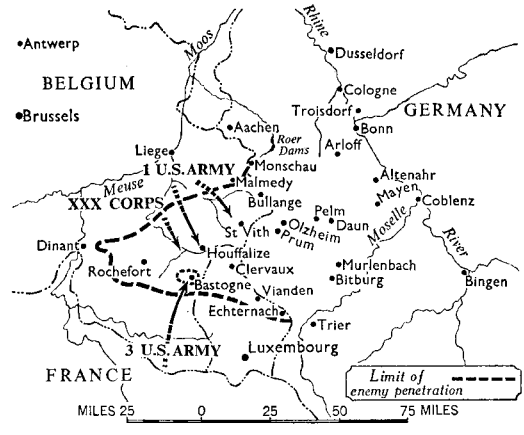
These appreciations misjudged the degree of Hitler's fanaticism, of Speer's genius for industrial production, of the determination of Germans to refuse at all costs the Allied call for "unconditional surrender", and the influence of the weather. In fact Field Marshal von Rundstedt was able late in October and November to withdraw armoured divisions into reserve for rest and re-equipment and he received substantial reinforcements of raw but fervent *Volksgrenadier* divisions. Allied air action delayed but did not prevent the movement (mostly at night) and concentration of 14 infantry and 10 armoured divisions in positions favourable for a concerted attack against the heavily wooded Ardennes sector of the First American Army's front, which was lightly held by only five divisions.

Hitler's plan, reluctantly accepted by his own generals,[1] and grandiose in the light of events, was to exploit the first favourable period of bad weather (which would neutralise Allied air superiority) for a swift assault across and beyond the Meuse to engulf Liege, Brussels and Antwerp thus isolating the Twenty-first Army Group. With nostalgic memories of the previous Ardennes blitzkrieg of 1940 he at times spoke of the possibility of a second Dunkirk which would knock British armies at least temporarily out of the war; he certainly hoped that the Western front would be so favourably stabilised that he could then release further divisions to

[1] Rundstedt, Model and Manteuffel all urged a limited objective of achieving a defensive line along the Meuse and the pinching out of the Allied pocket at Aachen.

meet the Russian threat from the east. The offensive would also gain valuable time during which the Allies might quarrel among themselves and in which a negotiated peace might be attained without a German defeat.

Accordingly in thick fog early on Saturday, 16th December, the German *Sixth Panzer Army* attacked in the north near Monschau; the *Fifth Panzer Army* in the centre between Olzheim and Bitburg, and the *Seventh Army* on the left flank between Vianden and Echternach. Initial surprise was complete; Allied headquarters failed to receive adequate reports from a battlefield suddenly thrown into chaos, and for 36 hours some generals in the field considered that the attack was only a diversion to draw American forces northwards from their Saar offensive. Eisenhower, however, was quickly convinced that the situation was serious and ordered both General Hodges' First American Army and Patton's Third to send help to the Ardennes so that by 19th December the original five American divisions had been joined by elements of another fourteen in their attempt to slow down or contain what had by this time become the heaviest counter-attack since the Allies landed in Normandy.



The Germans made substantial progress but unexpectedly stubborn defence of the key road junctions of St Vith and Bastogne forced Manteuffel's *Fifth Panzer Army* to move along muddy secondary roads and put it behind schedule in its dash towards the Meuse. The situation was desperate enough, however, for Eisenhower to ignore political and prestige factors and give Montgomery control of all forces north of the rapidly deepening enemy salient.[2] At the same time Patton's Third Army abandoned its own offensive and with characteristic speed swung northwards to the support of the embattled 101st American Airborne Division at Bastogne.

The thick fog which aided the initial assault lifted only slightly during the next week. For the first three days *Luftwaffe* fighters and fighter-bombers, carefully husbanded and prepared for this operation, matched the effort of IX and XXIX Tactical Air Corps with a peak of 600 ground strafing missions on 17th December and a further 300 the same night. Thereafter for four days low cloud over bases and rain and snow throughout the battle area confined both sides to a nominal close-support air

[2] The Ninth and major elements of the First Army came under command of Montgomery while IX and XXIX Tactical Air Corps were temporarily attached to Second TAF.

effort. Weather thus achieved one of Hitler's desiderata—the elimination of the local air factor in the ground battle throughout the first week of the offensive. Air power could not entirely be ignored, however, and both American and British strategic bombing forces, better based and controlled from airfields in Britain, were called upon to join the battle; the German bombing force, by this time practically disbanded to provide pilots and ground crews for fighter squadrons, could make no contribution.

Choice of appropriate targets for the strategic bombers was difficult because at first the ground situation was so chaotic and visibility so poor that high-level bombing must inevitably be wasteful and indiscriminate. Bombing of oil installations would be ineffective in time to slow the offensive, while the secret dumps of fuel gathered by the enemy to launch his attack had not been identified. Area bombing also was a long-range objective, and so inevitably both the U.S.A.A.F. and Bomber Command were forced back on the communications system of Germany—a target which had proved disappointing during recent months and which obviously was resilient enough, despite previous attacks, to permit Rundstedt to prepare and mount his current offensive of unprecedented size. Thus on 17th-18th December Bomber Command made a three-pronged attack against Duisburg (Nos. 462 and 466), Munich (Nos. 463 and 467) and Ulm (No. 460),[3] all communication centres which might be used by enemy supplies or reinforcements en route to the Ardennes. Attack was then concentrated on targets nearer to the battlefield, and in daylight Trier was attacked on 19th, 21st and 23rd December. No. 460 was sent against marshalling yards at Bonn on 21st-22nd December but, although both ground marking and sky marking techniques were attempted, R.A.A.F. crews considered that only scattered damage was achieved. The same night, in equally atrocious weather, No. 462 made a disappointing raid against the Nippes marshalling yard at Cologne. Better results were obtained at Bingen on the 22nd-23rd when 10 out of 12 crews of No. 466 each returned with an aiming point photograph and circumstantial reports of heavy explosions very close to the target markers.

Even more successful was a repeat raid against Nippes on the 24th-25th, conducted this time by Lancasters of No. 1 Group. The attack was made in clear weather and crews of No. 460 who identified the target without difficulty confirmed that the marking was accurate. After 550 tons of bombs had fallen smoke rose several thousand feet into the air; nearly all the tracks were cratered and the marshalling yard was covered in debris from shattered rolling-stock. The locomotive depot and the engine and waggon repair shops were badly damaged in this and the earlier raid.

On 23rd December the weather changed dramatically with the arrival of a high-pressure system moving westwards which was to give five days of excellent flying weather. The *Luftwaffe,* taking advantage of its pre-knowledge of the weather, reacted with unaccustomed energy and purpose and mounted 800 fighter sorties over the battlefield on 23rd December. Next day German armoured spearheads advanced to within five miles of

[3] See Chapter 13.

the River Meuse, but at the same time Allied strategic bombers struck hard at German air bases. In daylight on 24th December some 1,400 heavy bombers of the U.S.A.A.F. dropped 3,500 tons of bombs on 11 airfields east of the Rhine. Bomber Command contributed three especially telling blows when No. 6 (R.C.A.F.) Group attacked Lehausen airfield at Dusseldorf, No. 4 Group bombed Mulheim airfield at Essen and (by night) No. 3 Group was sent to Hangelar airfield at Bonn. At Mulheim 15 crews of No. 466 arrived to find that the western side of the aerodrome was already enveloped in smoke and the master bomber was directing newcomers to the eastern half, which also soon became heavily cratered. Eight R.A.A.F. Halifaxes were hit by flak but all returned safely from this outstanding attack.

The airfield blitz and the swarms of Allied medium, light and fighter-bombers which now operated intensively over and beyond the battlefield forced the *Luftwaffe* from offensive to purely defensive tasks, and for the remainder of the good weather period German ground forces received little support from their own air arm and were subjected to continuous Allied attack. Between 23rd and 31st December the American Ninth Air Force flew over 10,000 sorties and claimed the destruction of more than 2,300 motor vehicles, 200 tanks or armoured cars, 170 gun positions, 600 railway waggons, 45 locomotives, 330 buildings and 7 bridges. This material damage and the creation of choke points on roads leading westward did much to slow down the German drive to the Meuse, and Bomber Command struck a heavy complementary blow on 26th December with an attack by 294 Lancasters and Halifaxes against St Vith.

Having failed to secure either Malmedy in the north or Bastogne to the south, the Germans were forced to push all their main road traffic through St Vith which provided opportunities for fighter-bombers unequalled since the Falaise pocket. Considerable quantities of men and materials were, however, slipping through at night, so the task of Bomber Command was to destroy this hub of communications sufficiently to prevent any fast traffic and thus give even greater opportunities for day attack by tactical forces. Both Nos. 460 and 466 were detailed for this raid and the R.A.A.F. crews had no difficulty in identifying their aiming point and dropped 95 tons of bombs (out of 1,139) before returning to base without being involved in any significant incident. Their estimates of heavy damage were soon confirmed by Ninth Air Force reports that every road radiating from St Vith was blocked and the cratered area within the town was so extensive that no direct passage through was possible. The roads were only partly usable 16 days after this attack, although an engineer battalion laboured night and day to clear them.

The blow was the more effective in that it sealed St Vith just as two enemy divisions were to the east of the town. They lost 36 hours in laboriously edging round the ruined area, and by this time the tide was beginning to run against the Germans. Late on 27th December the spearheads of Manteuffel's *Fifth Panzer Army* near Dinant, short of supplies and reinforcements, were beaten back into Rochefort, and the assault

which was to have retaken Brussels and Antwerp was thus halted short of its first objective—the River Meuse.

While attacks on communications and attrition of enemy vehicles within the Ardennes salient did much to blunt the German offensive, attacks by heavy bombers against rearward communications continued. The main German supply depots were all to the east of the Rhine and even temporary paralysis of rail centres meant a correspondingly heavy reliance on road transport for which the enemy had neither the vehicles nor petrol. Hitler's plan for the Ardennes offensive had envisaged that his armoured forces would quickly capture Allied P.O.L. (Petrol, Oil and Lubricants) dumps but these hopes proved illusory and the momentum of the attack was frequently slowed by the necessity for tanks to wait for up to several hours for refuelling parties. With only meagre supplies of petrol available from their heavily-bombed refineries the Germans faced an almost insuperable task of maintaining a major offensive over an inadequate road system under intermittent air attack in very severe winter weather. There was, however, no quick enemy collapse. In the last week of December Rundstedt, having persuaded Hitler that all hope of a major break-through had gone, began withdrawing from the Meuse; first to concentrate a maximum force against Bastogne, and then, when it was obvious that he could no longer capture that key position in the face of ever-swelling Allied reinforcements, to establish a defensive perimeter east of Bastogne but including St Vith. From this hump salient in the Ardennes the Germans could maintain the threat of further counter-attacks while conducting the masterly economic defensive in which they had proved so doggedly proficient during the late autumn.

Australian squadrons of Bomber Command resumed their offensive against German rail centres in daylight on 27th December when 211 Lancasters attacked the Rheydt marshalling yards near Munchen Gladbach. This force flew in group formation with seven aircraft of No. 460 acting as lead aircraft for No. 1 Group, and Nos. 463 and 467 providing 27 out of 44 aircraft contributed by No. 5 Group. The target was free of cloud and, although a few bombs overshot into the town area, bombing was well concentrated on the main marshalling yard. Damage was particularly severe at the junction to the south of the goods depot and northbound sorting sidings. All through-lines were temporarily blocked and rolling-stock was heavily damaged. That same night 18 Halifaxes of No. 466 flew to Opladen in a force of 328 aircraft, larger than normal against railway targets at this period. This attack, though bombing was more scattered, was successful as both large railway workshops at Opladen were seriously damaged, main and shunting tracks were badly cratered and much rolling-stock derailed or damaged.

Less satisfaction was expressed on the 28th-29th when No. 460 bombed the main yards at Munchen Gladbach; another bad weather cycle had begun, and heavy cloud obscured the target. On this occasion, too, the pathfinders were late in arriving and their sky markers did not appear well placed to main-force crews already orbiting. Most R.A.A.F. crews

considered the attack was scattered and indefinite. Finally, in the dying hours of 1944, No. 466 sent 16 Halifaxes to join in the heaviest raid of the December series, when 470 aircraft showered 1,750 tons of bombs through heavy cloud covering the Kalk Nord marshalling yards at Cologne. Target photographs showed only cloud but crew reports confirmed that there were heavy explosions and many good fires. During this last week in December there were six other Bomber Command attacks against Bonn, Gremberg (Cologne), Lutzel (Coblenz), Mosel (Coblenz), Troisdorf and Vohwinkel. Only individual R.A.A.F. crews joined in these raids, most prominently in the No. 3 Group daylight attack against Vohwinkel on 31st December when no fewer than 33 of the attacking Lancasters were piloted by Australians.

The rail targets so dramatically raised to first priority by the shock of the Ardennes counter-offensive demanded from Bomber Command during the second half of December 1944 an expenditure of 3,113 sorties and 12,848 tons of bombs, with a loss of 22 aircraft. The American Eighth Air Force in the same period attacked with over 20,000 tons of bombs, and American medium and light bombers added further weight to the assault on rail objectives in the Rhineland. Even the solid and resilient German rail system could not sustain this hammering without prejudice to military as well as civilian traffic. Although even the worst bomb damage was energetically repaired in what to Allied eyes appeared a depressingly short interval after each attack, the cumulative effect of the huge expenditure of heavy-bomber effort was to starve Rundstedt of material and therefore of tactical freedom when he had to face Allied ground counter-attacks.

Great as was the concentration on communications targets, Bomber Command attempted to meet other pressing commitments. In December the main effort against enemy oil targets was made by the American Fifteenth Air Force operating from Italy, but on 21st-22nd December No. 5 Group struck hard at Politz and on 29th December No. 1 Group bombed Gelsenkirchen.[4] No. 5 Group was also required to make five attacks on port areas and shipping, and two on E-boat and R-boat pens during the critical phase of the Ardennes battle. The raids by No. 617 Squadron against enemy light naval depots at Ijmuiden (15th December) and Rotterdam (29th December) had direct relevance to the problem of protecting Allied shipping using Antwerp. At Ijmuiden Flying Officer Martin[5] saw his Tallboy land in the south-west corner of the target while Flying Officer Ross reported that his bomb fell 20 yards short of the entrance to the massive concrete shelters. Ross also claimed a direct hit during the attack on Rotterdam, while Flight Lieutenant Gavin[6] scored a near miss on the entrance side of the underground docks. Severe damage was caused at both ports and, although not even direct hits by 12,000-lb bombs could demolish the shelters, gaping holes were torn in their roofs, and adjacent stores and loading areas were wrecked.

[4] See Chapter 9.

[5] F-O P. H. Martin, DFC, 427006. 61 and 617 Sqns RAF. Clerk; of Kelmscott, WA; b. Gosnells, WA, 19 Jun 1923.

[6] W Cdr H. V. Gavin, DFC, 408185. 458 Sqn, 617 Sqn RAF. Assistant surveyor; of Footscray, Vic; b. East Melbourne, 16 Nov 1919.

Less conclusive results were gained by a series of three raids against naval and merchant shipping in Oslo Fiord on 13th-14th, 28th-29th and 31st December. Fifty Lancasters operated on the first night without success, and on the 28th-29th crews of Nos. 463 and 467 found that moonlight filtering through a thin layer of cloud cast deceptive shadows on the water and provided natural camouflage for shipping. Flying Officer Stewart claimed that he had hit a ship on his first bombing run and there were other claims of hits and near misses but in no case could the ship attacked be positively identified. For the third attack No. 617 was included in order that the cruisers *Koln* and *Emden* might be attacked with Tallboys, but although some pilots circled for up to half an hour and made very deliberate bombing runs, both enemy warships escaped serious damage.

The largest raid in this series was made, however, on 18th-19th December by 236 Lancasters against Gdynia in Poland where the battleship *Lutzow* was based, together with a large collection of ships which fed the enemy's Baltic and Scandinavian forces. Forty-four crews were specially briefed to attack the *Lutzow* but, although there was no cloud at the target, the enemy had prudently set in operation a very effective smoke-screen. Consequently only 25 of this special group were able to identify and bomb the battleship from medium level with the aid of flares; no hits were registered. The main force made an attack against shipping and the port area using normal target-marking techniques. All except one of the 34 R.A.A.F. crews of Nos. 463 and 467 bombed the docks and reported that bombing was well concentrated. These claims were later confirmed when it became known that both the New Shipyard and Naval Dockyard were badly cratered, and a floating dock and at least two ships had foundered during this raid.

Meanwhile one of the most urgent air requirements was to maintain by night some curb on enemy troop and supply movements within the Ardennes battlefield and rear areas. On 17th-18th December, on resuming operations after six days of enforced idleness because of weather restrictions, crews of No. 464 found their patrols shifted from Holland to an area between Luxembourg and Coblenz covering the probable supply routes of Rundstedt's three attacking armies. All 16 R.A.A.F. Mosquitos bombed road or rail junctions in and around Mayen before scouring the area for any signs of enemy movements. Squadron Leader Dunkley strafed a column of 30 or 40 vehicles which were incautiously using lights, and he saw some cannon strikes before the convoy hastily took cover at the side of the road and doused its lights. Several other columns were attacked that night but, as always in bad weather, it was extremely difficult to give any accurate estimate of results. Seventeen crews of No. 464 returned to this area the next night when their bombing targets included the towns of Altenahr, Arloff, Daun, Mayen and Murlenbach; railway facilities at Daun, Mayen and Pelm, and a road junction at Altenahr. These attacks were made with the aid of Gee navigation equipment and could not be evaluated. The full effort of No. 2 Group on 18th-19th December was only 73 sorties and on the four succeeding nights no flights were practicable,

so that for the first week of Rundstedt's offensive the light night bombers achieved little.

The official diarist of No. 464 wrote gloomily on 22nd December: "The fog which has persisted for several days still hangs like a pall . . ." but next day came the long-awaited break. Eighteen crews were sent out that night with some expectation of being able to identify their targets visually. Most of their bombs were aimed at Prum, the forward base of the German *Fifth Panzer Army,* before thin-skinned vehicle targets were sought along the snow-covered roads. Flight Lieutenant Henderson fired on and saw his shells hit three motor vehicles and a passenger train, Pilot Officer Carter[7] had the satisfaction of seeing three trucks burst into flames after he attacked them, while several other crews made multiple attacks against stationary and moving vehicles, lights, existing fires and suspected dumps in wooded areas.

Seventeen sorties were made on Christmas Eve when again there was no lack of targets. Bullange, Prum, St Vith and Murlenbach were all bombed and fires left in each town, which were then further attacked with cannon and machine-gun fire. Crews stood by for a third successive attack on 25th December but this was cancelled at the last moment as fog again enshrouded Thorney Island and did not lift until the 28th. Fourteen Mosquitos attempted a patrol in very marginal weather that night but no ground activity could be identified and crews were forced to make blind-bombing attacks against villages with the help of Gee. Nor did weather at first appear favourable when 19 crews of No. 464 were detailed to harass enemy movement in the Clervaux area during the night of 31st December-1st January. Other squadrons operating earlier that night reported unbroken cloud between altitudes of 1,500 and 6,000 feet, but this had disappeared and visibility was good when the Australians began their patrol.

It was an eventful night for most crews. Pilot Officer Carter bombed a road and a wood as required by his primary briefing, and then fired at and hit a group of a dozen vehicles. Flight Lieutenant Simes strafed 20 armoured units and left one of these vehicles on fire; he then bombed and strafed some trucks which appeared to be hit and were last seen stationary close to the crater caused by his bomb. Dunkley shot at lights and road vehicles before bombing enemy concentrations hidden in a wood. He then attacked three flying bombs and saw debris fly from at least one of them followed by a large explosion on the ground. Wing Commander Langton, soon to leave the squadron but as keen and pugnacious as when he first took command, also saw and attacked a flying bomb which exploded with a terrific flash.

Meanwhile political decisions continued to motivate German military action in the Ardennes despite the lessons which Hitler might have learned from his own generals' appreciation of the tragic material and supply position, and of the growing menace of both Allied ground and air counter-offensives. Having failed to reach the Meuse during the last week of

[7] P-O J. H. Carter, DFM, 423636; 464 Sqn. Body builder; of Westmead, NSW; b. Granville, NSW, 24 Dec 1915. Killed in action 2 Feb 1945.

December, Rundstedt wished to disengage rapidly, shorten his defensive line and transfer units into reserve to meet future emergencies. Hitler, however, perhaps blinded by the dramatic manner in which all Allied offensives had been halted and units rushed from other fronts to meet his Ardennes thrust, wished above all to maintain pressure to unbalance the Western Allies; he still hoped for dissension between them. Accordingly a new German offensive to the north and south of Strasbourg was ordered for 1st January 1945.

Eight divisions attacked southward from the Saar with small-scale feints in other directions, but the Seventh American Army, under strict orders to hold Strasbourg at all costs because of the factor of French prestige, failed to react as violently as Hitler hoped. Methodical withdrawals were made into the best of the Maginot defences in Alsace, and thereafter, with strong support of American First T.A.F. and the reorientation of much of the Eighth Air Force effort to bear on targets in southern Germany, General Jacob L. Devers, commanding the Sixth American Army Group, with the help of the First French Army allowed the enemy counter-offensive to waste itself in frontal assaults without any element of surprise and in strength insufficient to force a break-through. Once the enemy had been contained Devers began to inch forward again and by the end of January had reoccupied virtually all his earlier positions.

The Alsace diversion thus failed to cause panic comparable with that of 16th December 1944 and there was no significant move of Allied forces away from the Ardennes to meet this new threat. Hitler's second plan of redistributing his Ardennes divisions to enable Manteuffel to make a steam-roller attack against Bastogne, beginning on 3rd January, was vitally affected. Manteuffel again had the advantage of bad weather, which freed him of the air menace, but, although he badly mauled the defenders of Bastogne and Patton's divisions pressing in for its relief, he was forced to disengage after two days of the most desperate fighting of the Ardennes campaign in the face of a delayed but typically well-prepared counter-offensive by Montgomery against the northern flank of the German Ardennes salient. Even Hitler was forced to agree that without Bastogne German forces must be withdrawn east of Houffalize or face encirclement. By 8th January the enemy line had been brought back and stabilised in strong entrenchments in the eastern Ardennes. The German offensive had failed but some of the bitterest fighting was yet to come.

Throughout the remainder of January Allied pressure against the remainder of the bulge was maintained in atrocious weather. Deep snow and ice added to the natural features of the wooded Ardennes to benefit the defenders. This was a type of bitter winter fighting which the Germans had learnt well in their Russian campaigns, and with their great resourcefulness and determination they were able to withdraw slowly. As early as 12th January new Russian offensives in Hungary and Poland had siphoned off elements of the *Fifth* and *Sixth Panzer Armies,* but with his remaining forces Rundstedt kept the major Allied armies in the west fully employed. By the end of January he had given up all the territory gained

during December but had extricated all his divisions still in fighting trim although with depleted manpower and with his supply echelons badly mauled by air attack.

Ultimately the Ardennes offensive was to prove a factor in the final enemy collapse, as the material losses sustained by each side could be so much more readily replaced by the Allies than by Germany. But again six weeks of respite had been gained during which the enemy indirectly dictated the nature of battle on the Western front. Patton's, Bradley's and Montgomery's projected offensives had all been delayed or shelved in favour of a prestige struggle in an area which, early in December, had been regarded as unimportant and suitable only for the retraining of resting troops. Although never approaching the degree of non-cooperation which Hitler hoped would permit him a "negotiated solution", natural divergences in American and British concepts of securing final victory were heightened by the Ardennes offensive just as much as they were shortly afterwards at the Yalta conference with Russia. On balance the time gained in delaying the confident expectation of an Allied victory in the west early in 1945 seems wasted as no other factor such as new weapons, or prepared defences, war weariness, or squabbling between the Allies arose to make the respite effective. But to a nation faced with an uncompromising call for "unconditional surrender" the Ardennes offensive, however costly, was of enormous psychological worth in rallying both military and civilians to renewed vigour in defending their homeland.

The Ardennes campaign upset Allied air plans as much as proposed ground campaigns. Air power was the greatest factor of disparity between the opposing forces, and yet the Allies in neither the strategic nor tactical fields had been able to prevent the Germans launching in conditions of complete surprise the heaviest counter-attack of 1944. Air planners, both American and British, who early in December had prophesied total enemy collapse under strategic bombing by the spring of 1945, now became cautious or even pessimistic. The Ardennes had taken the Eighth Air Force entirely and R.A.F. Bomber Command largely away from their professed strategic objectives to undertake purely tactical duties during the first fortnight of the land battle. The "bogeys" of new enemy rocket and jet-propelled aircraft, of new closed-cycle engined U-boats, and of possible new reprisal attack weapons, all posed threats to Allied capability to destroy German industry or inventiveness by air action alone. Planners began to talk in terms of a war extending at least into late 1945, and to rephrase their strategic bombing objectives.

Neither the oil targets nor rail transport targets could be abandoned even though both had proved apparently resilient to previous attacks.[8] Ordnance targets, including tank and armoured vehicle production plants, were given third priority under a new directive of 12th January 1945

[8] The oil targets had been already vitally hit, and, although enough POL was scraped together to launch the Ardennes campaign, lack of reserves was one of the most limiting factors in all its stages. Previous attacks against rail targets over a wide area had largely been absorbed by the elimination of civilian or low priority military traffic, but, in key areas such as the Rhineland, local and temporary complete stoppages had been achieved on occasion and the entire German transport system was strained more seriously than was apparent at this time.

because of the unexpected weight of armour Rundstedt had been able to deploy in the Ardennes: this commitment was interpreted by the U.S.A.A.F. as requiring precision attacks and by Bomber Command as requiring area attacks against industrial cities. Enemy aircraft production, which, like ordnance, had been dropped in October 1944 as too long-range an objective for the quick victory then envisaged, was nominated as fourth priority, and enemy submarine-construction yards also reappeared on the approved target list. The general mood early in 1945 was that, although during 1944 Bomber Command had dropped no fewer than 500,000 tons of bombs on enemy objectives (three times the 1943 total and more than double the 1939-43 total) and the Eighth Air Force had dropped another 386,000 tons,[9] even this colossal scale of bombing must be stepped up and distributed more widely if German industry was to be critically weakened.

While this reappraisal of needs and priorities was taking shape in the Combined Strategic Targets Committee, in SHAEF, U.S.S.T.A.F. and Bomber Command, the heavy bombers were faced in January 1945 with the worst month of night-flying conditions for at least two years. Snow fell on 18 days, fog was prevalent, weather was only consistently good on one night, variable but mainly good on 8 nights, poor on 15 and execrable on 7. In such conditions the main bomber force, eager though it was, could operate only on 11 nights, although some compensation was found in opportunist daylight attacks on 10 occasions and by an outstanding effort by Mosquitos of the night light-striking force which operated on 16 nights including seven raids on Berlin. Nevertheless the monthly total of 33,000 tons of bombs dropped was easily the lowest since March 1944, and this effort was spread over four main and two subsidiary target systems not strictly in order of priority but rather of opportunity. The air war, like the ground battle, seemed one of bitter slow progress during which the enemy was certainly being hard hit but in which at this time there were few outstanding successes.

Direct support by Bomber Command for ground forces was restricted by the static nature of the ground struggle to two attacks against the Ardennes key point of Houffalize and one against the almost-forgotten enemy garrison in the Biscay port of Royan. On 30th-31st December and again on 5th-6th January No. 5 Group sent 154 and 140 Lancasters to pound Houffalize, second only to St Vith as a choke point for enemy movements. Great care had to be taken, especially during the second raid, as Allied troops were not far from the town (although it did not fall until 16th January). On 30th-31st December, when the R.A.A.F. units each sent a dozen aircraft, about half the crews declined to bomb because they could not identify landmarks. The others who daringly went down below cloud (at 5,000 feet) bombed with confidence and reported a large ground explosion.

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[9] The Fifteenth Air Force from bases in Italy dropped 330,000 tons of bombs during 1944 of which an ever-growing percentage fell on targets in central and southern Germany. During 1944 AEAF dropped 153,000 tons of bombs on tactical targets in German-held territory.

Again on 5th-6th January nearly one-third of crews were unable to make satisfactory bombing runs because of cloud and returned with their bomb-loads, but some of Nos. 463 and 467 who bombed through convenient gaps in the cloud or on the glow of ground markers saw several large fires spreading in Houffalize. Nearly 1,000 tons of bombs fell in these two raids and the town, under recurrent attack also by American medium, light and fighter-bombers, was heavily cratered and virtually destroyed. In the interval between these attacks No. 5 Group on 4th-5th January had taken advantage of local weather conditions to bomb Royan where the well-entrenched garrison had for months repulsed all efforts of French irregular troops investing the port. There were fears that this port, together with La Rochelle, St Nazaire and Lorient, all similarly garrisoned as enemy "coastal fortresses", might again achieve some significance in the U-boat war. While Royan held out the Allies were denied free use of Bordeaux and the Gironde estuary. The bombing attack was well concentrated, but most of the bombs fell harmlessly on massive concrete fortifications and shelters. In the absence of a coordinated ground assault it failed therefore to do anything more than temporarily daze the defenders. One Lancaster of No. 463 was shot down and another of No. 467 was abandoned by its crew who parachuted safely after a collision over the target.

The attack against German trunk canal routes was resumed during the first week of January and for this task No. 5 Group, because of its previous training in low-level attack, was again used. Daily reconnaissance flights had shown that after prodigious repair activity the Germans were ready to put the Dortmund-Ems canal back into operation and that similar progress with repairs had been made to the breached section of the Mitteland canal near Gravenhorst. In daylight on 1st January Nos. 463 and 467 each provided 10 Lancasters in a force of 104 which in fair weather and good visibility set out for Ladbergen with a mixed load of instantaneous and delayed-action fused bombs. No enemy fighters were seen but the force, which attacked at altitudes between 9,000 and 12,000 feet, had to face anti-aircraft fire not intense in volume but very accurately aimed. Flying Officer Price[1] of No. 83 Squadron, who acted as deputy master bomber, suffered severe flak damage to his aircraft early in the raid but managed to complete his task over the target.

Even greater determination and courage were shown by Flight Lieutenant Bache[2] of No. 467 whose Lancaster was holed in the port wing and bomb bay as he approached Ladbergen. This shrapnel damage did not appear at first to affect adversely the handling of the aircraft so Bache carried on and bombed the aiming point. As he turned away heavier shell fire holed one of his petrol tanks and damaged both engines on his port wing. The port-inner engine burst into flames, which subsided only when the propeller was feathered. By this time the Lancaster, with only its starboard engines

[1] F-Lt J. F. Price, DFC, 33645. 44 and 83 Sqns RAF. Turner; of Waterloo, NSW; b. Parramatta, NSW, 2 Mar 1921.

[2] F-Lt M. G. Bache, DSO, 434095. 2/5 Coy AASC AIF; 467 and 466 Sqns. Electrician; of Adelaide; b. Adelaide, 8 Jul 1915.

fully effective, was losing height rapidly, but Bache regained control by keeping his rudder bar at full movement to counteract the torque of the engines. He now had to make a decision vitally affecting the lives of his crew. He could order them to bale out with comparative safety while the Lancaster was flying at several thousand feet, but they would become prisoners of war. Should his strength fail to hold the rudder during an attempted flight back to Allied lines, the Lancaster would almost certainly spin out of control and all might be killed. Bache grimly resolved to fly the Lancaster back to safety and ordered a crew member to attach a cable to the rudder bar to help him to maintain the necessary leverage. Even when the port-outer engine failed completely while he was still crabbing across Germany, Bache persevered even though he was flying at greatly reduced speed and steadily losing height. As he approached the enemy Rhine defences his aircraft encountered considerable light anti-aircraft fire and was hit again, this time in the front turret, bombing panel and cockpit. When he had passed through this curtain of fire and was sure that he was over Allied-held territory, he finally ordered his comrades to parachute to safety, but would not himself follow until he was satisfied that all had left and were well clear. This persistence nearly cost him his life as the Lancaster began to drop rapidly before he jumped so that his parachute did not open until just before he crashed into the top of a tree and fell heavily to the ground; he was badly shaken but escaped serious injury.

The results of this Ladbergen raid were not fully known when, the same night, No. 5 Group assembled a force of 152 Lancasters to make a similar attack on Gravenhorst. For this raid Waddington could muster only 10 aircraft, but all R.A.A.F. crews returned confident that the raid had been a success. Again bombing was conducted from as low as 9,000 feet and achieved many hits in the canal and on its banks with delayed-action bombs. This enthusiasm was well merited for, when full photographic coverage was obtained on 14th January, it was seen that a heavy concentration of craters extended along the canal for about half a mile. Several parts of the bank had been breached and the water drained away. Similarly at Ladbergen the immediate results of the daylight attack were to create flooding between the two arms of the canal, and a breach of 180 feet south of the Glane aqueduct where water had poured into the Glane Valley. The delayed-action bombs then caused a new breach of 230 feet in the west bank of the main arm of the Dortmund-Ems canal and two smaller breaches in the east bank. Accordingly these targets were removed from the priority attack list for the estimated time of four weeks before repairs could be completed.

Meanwhile the German Air Force on 1st January 1945 had mounted its long-planned strike in maximum strength against Allied airfields in Belgium and Holland which were packed with close-support aircraft of A.E.A.F. Goering himself planned this "lightning blow" with great care and secrecy; special reserve stocks of aviation gasoline were made available, formation leaders specially chosen to lead inexperienced units,

and night fighters trained to act as pilot aircraft for the whole force, which finally numbered nearly 800 fighters and fighter-bombers. Complete tactical surprise was achieved as these aircraft, assembled and flown under conditions of radio silence, made a stunning attack on 16 Low Country airfields and a French one between 8 a.m. and 10 a.m. on New Year's Day. Some of the Allied airfields were icebound and could not even fly off their readiness sections of fighters to meet this surprise attack. In all nearly 150 Allied aircraft were totally destroyed and a further 50 so heavily damaged that they had to be sent to aircraft depots. But the later stages of the raid were equally costly to the *Luftwaffe*. Anti-aircraft guns at airfields or along the withdrawal routes of the raiders accounted for 170 aircraft. British and American fighters, hastily scrambled from French airfields, shot down nearly 60 of the attacking force which had become disorganised after leaving its targets; some other inexperienced German pilots crashed after collisions or because of inability to navigate accurately after their section leaders had been shot down.

Thus "*der Grosse Schlag*", although a great propaganda triumph and an embarrassing reminder to the Allies that the *Luftwaffe* was not yet bereft of versatility and aggressiveness, was in the long run a costly venture. Both sides could easily afford the aircraft actually destroyed but losses of capable fighter pilots and flight leaders on this morning of savage fighting dealt a crippling blow to Germany. Militarily the attack had little effect for it could not be followed up and Allied close-support operations during January 1945 were restricted by weather far more than by any lack of aircraft or pilots. Originally this mass attack had been timed for the opening of the Ardennes offensive in mid-December and in certain circumstances it might have had military relevance to that blitzkrieg. But on 1st January it was linked only to the supplementary German offensive in the Saar area far to the south where Allied armies were supported by air units not based on Dutch or Belgian airfields.

As no R.A.A.F. unit was then deployed on any forward continental airfield, only a few Australians either experienced the shock of this surprise attack or played a part in the swift retribution which overtook the invaders. The main reaction among individual aircrew based in the United Kingdom and Europe was a loss of complacency concerning the enemy air potential. This feeling of new caution was mirrored in varying degrees by units and by higher formations with far greater access to Intelligence sources to help them to appraise the real futility of the desperate enemy gamble. It reinforced in planning circles the impression already given by the main Ardennes offensive that the war might be protracted because of the unexpected ability of the Germans to mount counter-offensives. Bombing policy, as always, was re-examined to seek new or re-emphasise old target systems which would meet any *Luftwaffe* threat. This brought some diversification of targets for the U.S.A.A.F., but Bomber Command, while still following its own bent in dropping 11,000 tons on German industrial cities during January 1945, met the current demand by expanding its activities against enemy synthetic oil plants—both geographically in that

it hit targets away from the Ruhr and in weight of attack in that more than 9,000 tons of bombs fell in twelve night and two day raids against priority oil targets.

No. 466 Squadron dispatched 10 Halifaxes on 1st-2nd January in an uneventful but successful attack against the benzol plant at Dortmund. Although they produced practically no aviation fuel the enemy batteries of benzol-producing coke ovens (usually situated in colliery districts) provided large quantities of motor spirit and more recently had concentrated on production of toluol (for T.N.T.) because of bomb damage to the methanol installations which had previously fed the high-explosives industry. This was, however, the only oil raid made by the squadron during January, largely because the Halifaxes had certain limitations in range and equipment which in bad weather made it preferable for them to be employed against more easily identifiable targets.

R.A.A.F. Lancaster units were more active, and on 13th-14th January Nos. 460, 463 and 467 Squadrons were provisionally briefed to attack the distant target of Politz. This key installation produced synthetic fuels by the Bergius process and had begun to work at full capacity of 600,000 tons a year late in 1943 only to have this output rate cut severely by repeated U.S.A.A.F. raids and one attack by Bomber Command in December 1944. Its relative importance to the enemy was clearly shown in that it was, by January 1945, protected by more anti-aircraft guns than were some of the major industrial cities. However, even while the massive striking force was being assembled, meteorological reconnaissance aircraft reported deteriorating weather conditions along the proposed route and some airfields in England also became weatherbound. The plan of attack was quickly changed from a mass visual raid to a much smaller experimental type of instrument bombing raid employing only the more highly-trained squadrons of No. 5 Group. Thus, while No. 460 cancelled its preparations, 14 Lancasters of No. 463 and 17 of No. 467 set out on the 10-hour round trip to Politz, only to find that the vagaries of continental weather had again intervened to provide conditions favourable to the No. 5 Group low-level marking technique. Flying Officer Blair[3] of No. 467 reported that the marking was well placed, target indicators clearly visible and instructions from the airborne controller calm and concise. He himself saw the oil plant and observed a direct hit on one oil container which exploded with a large orange flash. Similar eye-witness accounts of effective hits were given at debriefing by Flight Lieutenant Lawrence[4] and Flying Officer Bullock[5] of the same unit; only one R.A.A.F. crew failed to attack and the general feeling was that the attack had exceeded expectations.

Only 218 Lancasters took part in the modified raid on Politz but the very next night the largest force dispatched by Bomber Command against

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[3] F-Lt J. T. Blair, 8350; 467 Sqn. Engine driver; of Geelong, Vic; b. Connewarre, Vic, 14 Oct 1917.

[4] Sqn Ldr F. Lawrence, DFC, DFM, 414144. 460 and 467 Sqns. Shop assistant; of Maryborough, Qld; b. Maryborough, 22 Mar 1919.

[5] F-Lt A. E. Bullock, DFC, 418614. 467 Sqn, 617 Sqn RAF. Clerk; of Regent, Vic; b. Richmond, Vic, 1 Sep 1921.

an oil target was sent to hammer the large oil, synthetic ammonia and methanol plant at Leuna-Merseburg. This installation had suffered 19 U.S.A.A.F. and one R.A.F. attack already since 12th May 1944 and had been almost continuously out of operation as successive raids swamped the frantic efforts of an army of repair workers. The plant itself was considered to be in a basically sound condition and if left alone for two months was assessed as capable of achieving nearly three-quarters of its planned capacity. Previous raids had destroyed pipelines and ancillary services rather than main production units, so this mass raid, mounted in two waves, was intended to create heavier and more lasting destruction. Each of the Waddington squadrons sent 14 Lancasters in the first wave of 220 aircraft for a satisfactory attack made through thin cloud and haze. Both flak and fighters were active and 9 Lancasters were lost including 4 piloted by Australians.[6]

Flight Lieutenant Cornish of No. 83 (Pathfinder) Squadron had completed his task of primary blind marking when his aircraft was heavily damaged by flak but he withdrew and reached base safely. Flying Officer Howells[7] of No. 463 had to face recurring dangers when his aircraft was hit by shell fire and both front and rear turrets were put out of action while he was on his bombing run. Howells pressed on but again the Lancaster was hit by heavy flak which disabled one engine and most of the hydraulic controls. His flaming engine attracted the attention of an FW-190 night fighter which opened fire and damaged some of the cockpit instruments before being driven off by the mid-upper gunner whose turret was the only one in operation. As the crew struggled to force open the bomb doors and jettison their load, a third burst of shell fire damaged the starboard wing and holed a petrol tank. Good crew drill backed Howells' calm decision and fine airmanship and a safe emergency landing was made at a French airfield.

Meanwhile the heavier second wave of 360 aircraft had taken off between 7 and 8 p.m. to be on target at Leuna soon after midnight, two hours after the first assault. The 16 crews of No. 460 could see the glow of fires caused by the first section, but could not distinguish any ground detail and were rather confused by the marking plan which employed both sky and ground markers. Three R.A.A.F. Lancasters failed to bomb. Several others were attacked by fighters but escaped without loss, and Flying Officer Pegg[8] of No. 576 Squadron claimed that he shot down a jet-propelled enemy fighter. Although their claims were cautious in tone, Bomber Command crews in this twin raid had virtually completed the neutralisation of Leuna as a producing unit. Photographs proved that the northern half of the plant had been heavily damaged with all important units affected. Enemy damage assessments[9] listed damage in all sections aggregating 60,000,000 reichmarks and a gloomy prediction that, with the

[6] One each from Nos. 463, 9, 50 and 106 Squadrons.

[7] F-Lt F. J. Howells, DFC, 419044; 463 Sqn. Junior chemist; of Caulfield, Vic; b. Hawthorn, Vic, 9 May 1924. Killed in action 3 Mar 1945.

[8] F-O C. R. Pegg, DFC, 405811; 576 Sqn RAF. Garage proprietor; of Brisbane; b. Bundaberg, Qld, 30 Sep 1914.

[9] Quoted in US Strategic Bombing Survey, *Oil Division Final Report* (1947), p. 111.

best possible repairs, the plant could not open up for a month or reach 25 per cent production within three months. There were no fewer than 712 major breaks in the vital utility reticulation lines apart from destruction or damaging of major production units.

Following swiftly on this outstanding success at Leuna Bomber Command on 16th-17th January struck at three major enemy oil plants. No. 3 Group sent out 128 Lancasters which dropped 572 tons of bombs on Wanne-Eickel, which had already sustained six raids by Bomber Command. Of the 27 Australian pilots active that night most reported some difficulty in aiming because heavy cloud covered the target, but the raid was well concentrated and effective in reducing plant output to a fraction of its potential. At the same time No. 1 Group provided the major part of 325 Lancasters sent on the first and only Bomber Command attack against the hydrogenation plant at Zeitz, which had recovered partially from four previous U.S.A.A.F. raids and was estimated to produce 500 tons of fuel daily. Seven out of 20 crews from No. 460 were briefed as additional support for the pathfinders to ensure a good strike, but unexpectedly this force was favoured by good weather and over 1,300 tons of bombs fell in what crews claimed was a concentrated attack which caused large fires and several explosions. German records[1] show that only 254 tons of bombs fell in significant plant areas but this was two and a half times the weight of any previous attack and decisive results were obtained. The power house, both injector houses, the liquid air plant, distillation plant, catalyst section and gas-purification plant were all badly damaged, and much of the exposed but essential piping between sections was destroyed. Production of oil and chemicals came to an abrupt halt and Bomber Command estimated that it could not be resumed for two months.[2]

This success was obtained for the loss of 9 bombers but No. 460 crews reported only minor trouble from numerous but uncoordinated gun and searchlight defences and only one brief combat with a night fighter. One Australian captain of No. 166 Squadron was among the missing while Flying Officers Mosley[3] of No. 103 and Pegg of No. 576 earned distinction by successfully completing their missions although in each case engine trouble on the outward route made them approach the target at heights well below the bomber stream and their Lancasters were heavily attacked by ground gunfire.

The third target in this memorable night of Bomber Command's campaign against enemy oil resources was Brux, a comparatively new and as yet incomplete major plant in Czechoslovakia which had previously suffered three crippling raids by U.S.A.A.F. aircraft, but which was known to have recommenced operation on 25th December 1944. For this arduous 10-hour flight No. 5 Group gathered a force of 237 aircraft including 28

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[1] *Oil Division Final Report*, Table 37.

[2] The contemporaneous enemy estimate was that 50 per cent production might be achieved in three months if no further attacks ensued.

[3] F-O A. J. Mosley, DFC, 418454; 103 Sqn RAF. Bank clerk; of Maryborough, Vic; b. Orbost, Vic, 24 Mar 1922.

from Waddington. With extra fuel but reduced bomb-load this force droned across Europe, avoiding enemy air attack with the help of a spoof raid by Mosquitos against Mannheim and because the *Luftwaffe* was already heavily committed in opposing an area attack by No. 4 Group on Magdeburg. There was no clear sky at Brux but all crews of No. 463 and all except two of No. 467 bombed confidently on the glow of ground markers which appeared well concentrated. A total of 857 tons of bombs was dropped by 225 Lancasters and severe damage was caused in all branches of the Brux plant.

R.A.A.F. squadrons were not represented in a further heavy oil raid against Duisburg on 22nd-23rd January but the hammer blows dealt in the middle of the month were assessed as adequate to keep enemy potential below consumption level until the end of the bad weather. Allied Intelligence estimates were by no means always accurate but this one was strikingly confirmed by a letter to Hitler dated 19th January from Speer. It read gloomily:

My Fuehrer

Since 13th January 1945 a new series of heavy attacks on the oil industry has been introduced, which has already led to prolonged shut-down of the great hydrogenation plants of Politz, Leuna, Brux, Blechhammer and Zeitz. . . . The repair of the plants after each attack has become more difficult owing to the use or destruction of reserves of machines and equipment; in addition repairs take a longer time. It must also be stated that the now frequent night attacks are more effective than the day raids as heavier bombs are being used and an extraordinary accuracy achieved; therefore even if the repair and production during the first quarter of 1945 were to proceed undisturbed, the planned production, which during the final quarter of last year seemed possible, can no longer be achieved.

During January 1945 Bomber Command dropped more than 7,000 tons of bombs on specific railway yards and traffic centres in nine night and seven day attacks to foster the "transportation" objective, but R.A.A.F. units were directly involved in only two raids both made by Halifaxes of No. 466. On 14th January 17 R.A.A.F. Halifaxes took part in the third main-force raid within 24 hours against marshalling yards at Saarbrucken, a choke point on enemy routes to both the Ardennes and southern fronts. Sixteen crews from Driffield on 28th-29th January bombed the Kornwestheim marshalling yards at Stuttgart as a specific phase of the much larger area attack made on the city that night. During other attacks Australian participation was prominent only in the specialised precision raids mounted by No. 3 Group with G-H radar which permitted attacks in weather unsuitable for other groups. Thus at Vohwinkel on 1st-2nd January 20 R.A.A.F. pilots were in the force of 146 making an effective attack. Similarly 26 Australian pilots were in a force of 160 attacking Ludwigshaven in daylight on 5th January, but this raid was only partially successful as the factors of weather, intense flak and fighter opposition resulted in a scattered bombing pattern. On this occasion Pilot Officer Allwright[4] of No. 622 and Flying Officer Robson[5] of No. 115 demonstrated

[4] F-Lt J. S. E. Allwright, DFC, 424010; 622 Sqn RAF. Student; of Marrickville, NSW; b. Marrickville, 28 Jul 1923.

[5] F-Lt J. T. Robson, DFC, 415183; 115 Sqn RAF. Railway porter; of Perth, WA; b. Bridgetown, WA, 19 Sep 1913.

the high sense of purpose which actuated Bomber Command crews by continuing their attack even though their Lancasters had previously been severely damaged by flak.

Australians were equally well represented in a force of 153 Lancasters which struck at the Cologne-Gremberg marshalling yards on 28th January when, despite a tendency for early arrivals to overshoot, and some scatter effect, the target was plastered with over 750 tons of bombs. One formation of Lancasters was led by Flight Lieutenant Grant[6] of No. 115 Squadron whose Lancaster was badly damaged by flak as he led his gaggle into position for carpet bombing. The bomb aimer, Flying Officer Keating,[7] was badly wounded in the neck but did not report his injury and remained at his post giving clear and precise instructions as Grant completed his approach and attack. Only when the Lancaster was well clear of the target did Keating mention his wound and even then he did not leave his post until ordered to do so; shortly afterwards this gallant bomb aimer collapsed and was unconscious for over an hour. Two other Australians, Pilot Officer Darville[8] and Flight Lieutenant Fiedler,[9] both of No. 622 Squadron, by courage, skill and good crew cooperation piloted badly-damaged aircraft back to base after this raid.

Backing up the R.A.F. and U.S.A.A.F. heavy assaults on major specific transport targets were the ubiquitous attacks by Second T.A.F. and the Ninth Air Force against a variety of trans-shipment and traffic centres nearer the front line. Again No. 464 provided the main R.A.A.F. contribution although individual Australians with many medium, light and fighter-bombers made a small contribution. On 1st-2nd January 18 R.A.A.F. Mosquitos attacked rail and road centres in front of the First and Ninth American Armies in atrocious weather, with most of the aircraft being diverted to Cambrai at the end of their patrol. Operations from Thorney Island were becoming increasingly difficult but a permanent move to a continental base was continually postponed and did not come until the second week in February. No fewer than six out of 13 crews sent to bomb St Vith and Houffalize on 3rd-4th January had to abandon patrol because of icing conditions. The Australians waited with ill-concealed impatience in the frost and mud of Thorney Island, but operations were possible on only a further seven nights that month, No. 464 dispatching a total of 100 aircraft to attack the usual battlefield and rear choke points without the satisfaction of being able to report any outstanding results from bombing or strafing.

The middle of the month saw the arrival of Wing Commander N. F. Vincent to take over from the hard-working and well-loved Langton who

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[6] F-Lt S. M. Grant, DFC, 419565; 115 Sqn RAF. Clerk; of Balcombe, Vic; b. Melbourne, 18 Mar 1923.

[7] F-O B. Keating, DFC, 429115; 115 Sqn RAF. Salesman; of Mudgee, NSW; b. Barmedman, NSW, 26 Jan 1924.

[8] F-O G. E. Darville, DFC, 420812; 622 Sqn RAF. Clerk; of Lismore and Sydney, NSW; b. Lismore, 28 Nov 1922.

[9] F-Lt J. H. Fiedler, 418259; 622 Sqn RAF. Clerk; of St Kilda, Vic; b. Lockington, Vic, 13 Apr 1924.

continued to lead practically every sortie until the end of the month. Mid-January was also marked by the loss of three valuable crews from which the only survivor was Flight Lieutenant Shanks who baled out at low altitude but escaped with bruises when his aircraft crashed over France.

Shanks, who has been described as phenomenally lucky and yet phenomenally unlucky, illustrates some of the best attributes of the Australian civilian turned aircrew. He enlisted early and, although in the upper age bracket of aircrew, applied himself enthusiastically both physically and mentally to qualify for one of the most exacting tasks of all—as a night-fighter navigator. He was badly injured in a forced landing at Crediton during a daylight Ranger patrol on 30th May 1943 and spent six months in hospitals and convalescent depots. Throughout this period his one dominant thought was to get back to operational flying and he drew on his deep wells of conviction and determination to enthuse not only his fellow patients but the various medical boards he had to face. He could with complete honour have taken an instructor's post, for which his experience and ability well suited him, as his eyesight rating was marginal by the more exacting standards imposed since his enlistment. This he declined to do, and he so impressed the doctors by his unquenchable spirit and intelligent approach to his ocular difficulties that he was passed fully fit and joined No. 464 Squadron. Here he teamed up with Squadron Leader Oxlade, an outstanding commander of "A" Flight, in a hard-hitting partnership which ended when their Mosquito was shot down on 5th-6th June 1944 while supporting the invasion of Normandy. Oxlade was killed but Shanks, physically shaken but typically undismayed by his plight, was accepted into hiding among farmers just behind the front line. Their patriotism as well as Shanks' own personal qualities could have had few harder tests as for months he worked around German billets in the launching area for V-1 rockets, where any mistake would have meant death both for himself and his hosts.

As soon as he was freed by the Allied westward advance late in August 1944, he once more bent his energies to return to operational duties, and once more his singlemindedness prevailed. After his third crash on 17th-18th January 1945 he was sent, still protesting, to a staff liaison job with Second T.A.F. headquarters, which he did well, but he still lobbied continually to return to squadron duty. Unusually modest as to his own achievements, he was always full of praise for others and had the gift of enthusing younger men with his own fervid ideals of personal loyalty and service. He was an airman only because national emergency pointed to this as a way to fulfil his obligations; but, while so serving, nothing, certainly not his personal needs, could deter him from giving his utmost.

Bomber Command's natural predilection for area attacks against cities was sustained during January by the bad weather which often ruled out success against the official oil and transport targets but still offered hope of success against large built-up areas. Thus No. 460 began the year on 2nd-3rd January with a full squadron attack by 26 crews against Nuremberg, previously raided six times, but still a priority target because of its

expanding war industries. On the same night 14 Halifaxes of No. 466 bombed the I.G. Farben chemical factory at Ludwigshaven. On the 5th-6th a two-pronged assault was made on Hanover, 14 crews of No. 466 attacking in the first wave and 22 of No. 460 making a follow-up raid some two hours and a half later. Both squadrons again joined in combined attacks by Nos. 1 and 4 Groups against Hanau the next night, and on 7th-8th January Nos. 1 and 5 Groups were detailed for the seventh full-scale raid against Munich. On this occasion No. 460 sent 18, No. 463 16, and No. 467 11 Lancasters, which, despite spirited opposition from anti-aircraft batteries and fighters, bombed satisfactorily.

Magdeburg suffered its second full-scale raid by Bomber Command on 16th-17th January when a force mainly composed of Halifaxes (including 16 of No. 466) attacked in bad weather. Six nights later, during which period they had been completely grounded, 14 crews of No. 466 struck at Gelsenkirchen and the last "area" raid of the month came on 28th-29th January when No. 460 attacked the Zuffenhausen district of Stuttgart which contained an aero jet factory, at the same time that No. 466 was bombing marshalling yards in the same city. It will be seen that despite the vagaries of weather the program of heavy-bomber operation was dominated by a triple theme; continuance of attack against general industrial capacity, further restriction of fuel facilities, and disablement of means of transport. Many of the January attacks covered two if not all of the above objectives.

At the height of the bitter struggle in the Ardennes, No. 462 was withdrawn from the main bomber force[1] after only five months' service, thus reducing the R.A.A.F. effort to four squadrons disposed in three separate groups. No. 462 was, however, to remain within Bomber Command and on 27th December moved from Driffield to Foulsham in Norfolk as part of No. 100 (Bomber Support) Group. This group had formed at the end of 1943 to control the radio counter-measures and offensive night-fighter units at a time when the enemy night-defence system was recovering from disorganisation caused by use of Window by the main bomber force. At the beginning it was a heterogenous collection of units mainly engaged in training for the new specialised techniques of airborne jamming.

Apart from the activities of ground jamming stations and long-range night-fighter units, which continued at an increased rate, the first major success of No. 100 Group was with the Mandrel screen which covered the initial landings in Normandy on 5th-6th June. This led to the allocation of Nos. 171 and 199 Squadrons almost entirely to the task of blinding enemy early-warning radar in all subsequent Bomber Command raids. From August 1944 the Mandrel screen was supplemented by special Window feint attacks[2] which became bolder and more ambitious in confusing the enemy as to which apparent threats on any given night were

[1] Its last raid was against Cologne on 21st-22nd December 1944.

[2] The procedure of confusing the enemy by feint attacks began in 1943 by using aircraft from OTU's and HCU's to simulate bombing forces, but this expedient was difficult to organise and the feint force had to approximate to the size of an actual raid. A Window feint, however, could be mounted by a force only 5 per cent in number of its simulated size and it could penetrate areas too dangerous for training crews.

genuine raids; they also kept enemy defences without rest by operating on nights when no actual attacks were scheduled.

No. 462, like all other bombing units, had benefited from both Mandrel and the special Window units, but there was some disappointment at first among crews at their change in role. The intention was to make No. 462 a radar counter-measure squadron with aircraft fitted with the latest equipment to jam not only radar but W-T and R-T traffic also, but the Halifaxes could not be quickly modified and, as an interim measure, the unit was rostered with others of No. 100 Group for Window sorties. Coincident with the move to Foulsham Wing Commander Shannon was notified that he had been selected for special duty with Qantas Airways and would be repatriated to Australia. Before he handed over command on 17th January 1945 to Wing Commander Paull[3] the squadron had made "spoof" raids on seven different nights to Bremen, Nuremberg, the Ruhr (3 times), Mannheim and Sylt, and had initiated a procedure new to No. 100 Group which partly satisfied the desire of crews to have an active rather than a passive role. Beginning on 7th-8th January each aircraft carried 1,000 pounds of bombs in addition to its cargo of Window. This practice was to spread to other Halifax units of No. 100 Group and also gave rise to a more ambitious scheme whereby the Window force would simulate a normal No. 5 Group attack, complete with flares, markers and a spoof master bomber using No. 5 Group frequencies.

Four more "Window-bombing" attacks by No. 462 followed in the latter half of January and, after a month of operations, despite a run of mechanical failures which caused some early returns, the squadron had settled down and was enthusiastic. Intense ground training courses were begun to familiarise crews with the technical intricacies of their existing and projected radio counter-measure devices; they avidly studied all that was known of the German night defences to learn its weaknesses and devise the best ways in which their ghostly interference could handicap its efficiency. Crews also discovered that their new role demanded an even higher degree of navigational accuracy than main-force operations. This presented a challenge which brought a steady improvement in standards, so that by April 1945 No. 462 achieved the highest accuracy factor for the whole group.

[3] W Cdr P. McC. Paull, DFC, 270815. 7 and 462 Sqns; comd 462 Sqn 1945. Jackeroo; of Bowenville, Qld; b. Woking, England, 7 Oct 1917.

CHAPTER 17

BOMBER COMMAND AND THE TRANSPORTATION PLAN: SPRING 1945

ONE of Hitler's motives in ordering and sustaining the Ardennes offensive against the advice of his own generals, had been frankly political: he hoped to create divisions among the Allies which would then permit Germany to snatch a negotiated peace. Indeed from this time onward geopolitical and nationalistic issues begin to overshadow purely military ones. Roosevelt, Stalin and Churchill were each trying to shape in advance a new Europe after the inevitable collapse of Germany, with the result that their political agreements or failures to reach agreement on certain issues prevented at times a purely "military" solution to a ground situation. Among the generals too the planning of final campaigns became tinged with prestige factors and the desire to ensure that particular armies or national groups were in the van when final victory came. To some extent these prestige factors affected the individual armed Services, and in retrospect it would appear that both the R.A.F. and U.S.A.A.F. tended to bomb individual targets and target systems with an intensity which demonstrated their ability to hit hard rather than as a result of a clear assessment of the weight required to neutralise vital targets. But the individual soldier, sailor and airman only vaguely comprehended these influences; the prevailing mood in February 1945 was to strain every nerve for a quick end to the war in Europe to release forces to join in the mounting successes in the Pacific against Japan.

The immediate benefits of German miscalculation in the six-weeks Ardennes campaign were reaped by Russia. In Poland the Germans had, since October 1944, grimly held a defence line along the Vistula. Denied reinforcements for this vital part of the Eastern front covering Warsaw and the direct approach to Berlin, the defenders were literally swept aside when Marshals Koniev, Zhukov and Rokossovsky, with vastly superior forces, drove westwards in mid-January. Within two weeks Koniev had seized part of Silesia, whose coal mines were as important as those of the Ruhr; Rokossovsky had driven north to the Baltic to seal off more than 20 German divisions in Danzig and east Prussia; and in the centre Zhukov had rushed forward two-thirds of the way to Berlin, halting only at the line of the River Oder.

Even greater diplomatic successes followed immediately at the Yalta conference of 4th-10th February, for Stalin was in a strong bargaining position. The Casablanca formula of "unconditional surrender" was reaffirmed thus eliminating any possibility of compromise between Germany and any of the major Allies; the pattern of occupation zones within a defeated Germany was laid down, and more importantly Roosevelt and Churchill were manoeuvred into accepting a formula for a new Poland which did not entirely safeguard the principles on which Britain had

originally gone to war in 1939. There was sufficient intransigence in the Russian attitude to cause doubts of future harmony but, at the expense of conceding Stalin virtually a free hand in eastern Europe, Roosevelt was able to secure Russian support for the international security organisation proposed at Bretton Woods, and a promise that at an appropriate time Russia would declare war on Japan.

While, behind the scenes, politics dictated the outcome of victory, on a practical military level new spring campaigns were planned by the Allies. The direct Russian drive against Berlin was not resumed, but instead flanking movements into east Prussia, the Baltic states, Silesia, Czechoslovakia and Hungary consolidated Stalin's political gains. For his part General Eisenhower took up again his proposed three-pronged attack eastwards across the Rhine which had been in preparation before Field Marshal von Rundstedt's attack through the Ardennes. This plan envisaged that General Montgomery's Twenty-first Army Group (retaining the Ninth American Army) should first seize the west bank of the Rhine from Nijmegen to near Dusseldorf. To cover Montgomery's build-up for a dash across the Rhine, General Bradley's forces would then take the offensive between Coblenz and Dusseldorf, while, in the final assault stage, General Patton was to attack in the southern sector with a view to crossing the Rhine to permit complete envelopment of the Ruhr industrial area.

Montgomery made his preparations with typical thoroughness and reliance on weight of impact. During the first week of February 1945 the Second Tactical Air Force and American light and medium bombers operated at high intensity against enemy rail and road networks both west and east of the Rhine in an attempt to interdict German regrouping. For the initial attack, made on 8th February by XXX Corps in the direction of Kleve, he assembled an artillery force of 1,000 guns which laid a five-hour barrage of a fury unprecedented on the Western front. Bomber Command was called on to make a supplementary air bombardment of the key centres of Kleve and Goch during the night of 7th-8th February. No. 460 contributed 21 Lancasters to the raid on Kleve, and, although two crews failed to attack, the remainder bombed well and returned without loss. Eighteen Halifaxes of No. 466 went to Goch, but only seven crews bombed as the master bomber instructed later arrivals to return to base. Again all aircraft returned safely; Flying Officer McCallum[1] and his crew claimed the destruction of an Me-410 in one of the few brushes with enemy aircraft that night.

Bombing, especially at Kleve, was too devastating. High-explosive bombs were used and these, while effectively destroying the centre of the town, blocked roads and caused extensive cratering, which impeded the progress of British troops who arrived 24 hours later; by this time the defenders had recovered from the shock of attack and were able to use the rubble and craters as strongpoints. This factor, together with a sudden thaw which brought floods and quagmires along the only two routes

[1] F-O A. B. McCallum, DFC, 420977; 466 Sqn. Draftsman; of South Lismore, NSW; b. Taree, NSW, 23 Jan 1923.

of advance, delayed the fall of Kleve until the 11th, and the Reichswald area, a forest near Kleve, was not cleared of enemy troops until 13th February.

Meanwhile the Ninth American Army (General Simpson), due to make a supporting thrust on 10th February, was forced to stand by idle because at the last moment the enemy blew up the control valves of the Roer dams, thus creating floods, which aggravated by rain and thaw conditions, made the river impassable for another two weeks. These delays gave ample opportunity for the Germans to bring in divisions from the Rhineland to oppose the British and Canadian drive beyond Kleve. Fighting was dour, unrelenting and marked by only limited Allied gains, but it had a hidden significance. In sealing off this threat the Germans were forced to transfer reserves from the Rhineland proper, and their over-all defensive potential became dangerously unbalanced. On 23rd February, when the Roer floods had almost subsided, the Ninth Army struck beyond Aachen, and with very light casualties advanced directly to Dusseldorf, whilst its left wing swung north-west to link up with the Canadians at Venlo, thus completing the first phase of Eisenhower's plan.

The relatively slow progress made by Montgomery's forces during February appeared to justify pessimistic views that the war could not be won before the autumn. Both the R.A.F. and U.S.A.A.F. had already made plans to transfer large forces to the Pacific and now saw these plans jeopardised. The answer of the air commanders to the stubborn enemy ground resistance was simply heavier bombing both in degree and extent. Improving weather, particularly at night, permitted Bomber Command to drop nearly 45,000 tons of bombs during February 1945, a total three times as large as in February 1944. Moreover, planning staffs pointed out that by this time nearly every ton of bombs dropped was falling inside Germany proper and was thus directly effective in diminishing enemy capacity to resist. There was also a significant swing of the pendulum regarding choice of targets: enemy communications, although not formally elevated to an overriding priority, in practice received the greater part of the Allied bombing effort. British and American heavy bombers from England and Italy attacked the larger enemy rail centres and a number of important bridges; medium bombers concentrated on bridges and railheads near the front line (Western front only). As this bombing campaign created choke points, Allied fighter-bombers and fighters on their daily sweeps found increasingly favourable opportunities to attack rolling-stock and locomotives thus further temporarily blocking tracks and slowing the whole tempo of enemy supply lines.

This new confidence in a transportation target system also led the U.S.A.A.F. to advocate the mounting of a one-day coordinated strike by every available Allied aircraft against rail, road and canal targets throughout the greater part of the Reich. This operation (Clarion) was intended to affect not only the immediate tactical situation but also the economic life of areas remote from the battleground; moreover it had a subsidiary

purpose of giving a massive and terrifying display of Allied air superiority. A very similar plan (Hurricane) had been rejected six months earlier by the U.S.A.A.F. on the grounds that it was to a large degree an attack on civilian life. This change in American thinking, together with the fact that Clarion proposed to spread the attack over a wide geographical area, against the advice of the Combined Targets Selection Committee, was a measure of the urgency with which air commanders were seeking a decisive way to victory. In the event, when operation Clarion was carried out on 22nd February, no fewer than 7,964 sorties were flown by the American Eighth and Fifteenth Air Forces, R.A.F. Bomber Command and Second T.A.F. Nearly 200 communications targets were hit, scores of them for the first time, but although much temporary dislocation of the enemy rail organisation was evident Clarion failed to achieve the complete breakdown in military traffic which had been hoped.

To some extent the new emphasis on communications was merely an extension of the task given to bombers during the Ardennes campaign. For six weeks they had attacked German communications mainly to starve his front line. Now, as the new Allied offensive developed, it was appreciated that strategic and tactical considerations were closely interwoven. The industrial and support capacity of towns in close proximity to the Rhine became increasingly vulnerable and increasingly important to the enemy after each successful Allied air attack. This assessment was very acceptable to Bomber Command which made area raids nine times by night and twice by day during February against cities in western Germany previously attacked as industrial targets but now having added importance as communication centres or as holding centres for troops and supplies. The campaign, which to be really effective required successive blows without respite to enemy repair organisations, was favoured because February was the best month for night-flying operations since September 1944, with only 3 very bad, 8 indifferent, 9 mainly good and 8 very good nights. However, raids against Rhenish cities were conducted only during the first and last weeks of the month, being interrupted by new requests to bomb cities behind the active eastern battlefront, and by several large raids against oil targets.

At Binbrook No. 460 conducted 14 operations on 13 nights during February 1945 but only five were against railway targets on the Western front. This series began on 1st-2nd February, when 20 Lancasters joined with a large force to bomb Ludwigshaven. This was the tenth major raid sustained by that city, but as on 5th January when No. 3 Group had last attacked, pilots reported rather scattered bombing, although some hits were claimed both in the marshalling yards and in the town. On the next night 24 R.A.A.F. crews were sent to attack Wiesbaden where enemy troops were reported as billeted for rest and refitting. On this occasion four crews failed to drop their bombs, but the remainder returned confident that the target had been heavily hit. One Lancaster was shot down during this attack while another collided with its neighbour in the bomber

stream and crashed near Abbeville, the only survivor being Group Captain Parsons,[2] the commanding officer of R.A.F. Station Binbrook.

When the campaign was resumed on 20th-21st February No. 460's target was Dortmund, a major support centre facing the Twenty-first Army Group front. This raid was followed the next night by a heavy raid against Duisburg, the most important traffic centre on the same front, as it lay directly on the Rhine below Wesel, which Montgomery had already chosen as his intended crossing place. On each of these raids No. 460 lost one aircraft and crew to enemy action, but the Australians were much heartened during their final raid in February when Flying Officer Curren[3] and Pilot Officer Crosby,[4] gunners in the same crew, claimed the destruction of two enemy jet aircraft which attacked their Lancaster during a raid against Pforzheim. This town, lying between the major targets of Karlsruhe and Stuttgart, had not previously been attacked by Bomber Command. In pre-war years it had been famous for jewellery and allied trades, but as it was an important junction on the main line leading to the Seventh American Army front it warranted attack under the transportation plan. The main force of 300 Lancasters took off in late afternoon of 23rd February and, having skirted a cold front over the North Sea, ran into good weather over the Continent. The pathfinders had no trouble in laying accurate markers in such conditions and the whole centre of the town was soon ablaze, some 350 acres of the built-up area being gutted. No repeat attack was necessary.

Mainz, on the left bank of the Rhine opposite the mouth of the Main, was another new target for Bomber Command in February 1945, although the Eighth Air Force had attacked marshalling yards there both before and during the Ardennes campaign. A trading post and military strongpoint since Roman days, it had no heavy industries and therefore lacked the economic rating to justify a previous area bombing attack, but its geographical position in relation to the projected operations of the Third and Seventh Armies during the second and third phases of Eisenhower's plan to encircle the Ruhr made an attack on its communication and administrative facilities imperative. For the initial raid on 1st-2nd February a force of 292 Halifaxes of Nos. 4 and 6 (R.C.A.F.) Groups was solidly backed by 40 Lancaster and 8 Mosquito pathfinder aircraft. The force attacked from above cloud, at first aiming at a good concentration of ground markers and thereafter at a plentiful supply of sky flares released by the pathfinders. When it was their turn to bomb, 16 crews of No. 466 bombed on sky markers but two preferred to aim at the glow of fires seen through the blanket of low cloud covering Mainz. Most crews claimed that the markers were well placed but others thought they were misplaced in relation to their own radar and visual checks on the Rhine. The only positive results seen were the glow of fires and a number of moderate

[2] Air Cmdre K. R. J. Parsons, CBE, DSO, DFC, AFC, 109. Comd 1 ATS 1941-42, 7 Sqn 1942-43, 5 EFTS 1944, 460 Sqn 1944, RAF Stn Binbrook 1944-45, RAF Stn Gamston 1945. Regular air force offr; of Burnie, Tas; b. Scottsdale, Tas, 28 Jun 1914.

[3] F-O A. M. Curren, 433009; 460 Sqn. Clerk; of Brighton-le-Sands, NSW; b. Sans Souci, NSW, 22 Jun 1919.

[4] F-O G. W. D. Crosby, 430547; 460 Sqn. Actor-producer; of Bondi, NSW; b. Sydney, 29 Oct 1924.

explosions, and photographs taken at the time of bomb release showed sky markers, fire tracks and cloud but no ground detail. Ground defences were active and several enemy fighters were seen, but apart from a brief inconclusive combat with an Me-410 none of the Australian crews had any difficulty in pressing home the attack. About 1,000 tons of bombs fell in the town and some severe but not decisive damage was caused to railway facilities.

By the end of the month, throughout which American aircraft had watched the progress of enemy repairs, another full-scale raid by Bomber Command was ordered, this time in daylight. Again the task was given to the Halifax squadrons, No. 466 on 27th February contributing 15 crews to what they later described as a successful routine strike. Four days earlier the squadron had sent a similar force in daylight to Essen as part of the coordinated Clarion plan. This was the city's fourteenth major raid within two years, but although one R.A.A.F. Halifax was hit by flak and forced to land in Belgium it was symptomatic of the overwhelming air superiority of the Allies that such attacks could now be made at will.

No. 5 Group's first contribution to the new campaign against enemy communications was a raid on 1st-2nd February by 271 Lancasters against the town and marshalling yards at Siegen, another new target to the east of Cologne. As was increasingly its practice, the group used its own pathfinders and its own raid-control techniques, but, as other forces at Ludwigshaven and Mainz found the same night, low unbroken cloud spoilt bombing conditions. Twenty-two crews of No. 467 and 19 of No. 463 aimed at sky markers which rapidly became merged with the glare of incendiaries. It soon became apparent that fires were spread over a wide area but the bombing could only be reported as scattered and unlikely to be fully effective. Each R.A.A.F. squadron lost one aircraft on this raid, No. 467 losing a particularly valuable crew including Squadron Leader D. O. Sands, its "A" Flight commander and navigation expert, as well as Flight Lieutenant Ellis,[5] its squadron gunnery leader; both became prisoners. The squadrons fared even worse the following night at Karlsruhe when No. 463 lost one crew and No. 467 two, in addition to three members ordered to bale out of a burning Lancaster before the fire was extinguished and its captain was able to fly it safely back to base.

While prosecuting its campaign against rail towns with the twin objectives of inhibiting military movements and reducing supply and production capacity in such centres, Bomber Command had by no means forgotten targets that were important purely because they permitted distribution of raw materials or parts essential to the increasingly dispersed enemy war factories. Of these the inland waterway systems and in particular the Dortmund-Ems and Mitteland canals were prime targets, increasingly so as the Russians advanced into the Silesian coalfields thus making German industry even more dependent on coke and coal shipments from the Ruhr. Thus on 7th-8th February No. 5 Group was sent again to bomb the

[5] F-Lt E. C. Ellis, 418931. 297 and 296 Sqns RAF, 463 and 467 Sqns. Dispatch clerk; of West Coburg, Vic; b. Daylesford, Vic, 27 Jul 1913.

Dortmund-Ems canal at Ladbergen where repairs had finally been made after the raid on New Year's Day. German defences had also been strengthened and, although the bombers and ground searchlight teams were alike hindered by heavy cloud, fighters were active. Eleven Lancasters of No. 463 and 13 of No. 467 were included in the total force of 188 which dropped 820 tons of bombs during opportunist glimpses of the target through breaks in the cloud or on the glow of ground markers. As in previous attacks much of the load consisted of delayed-action bombs to hinder repair work.

On the return journey Flying Officer Peart[6] of No. 463 was strongly attacked by a Ju-88 but he manoeuvred his Lancaster so skilfully that his gunners were able to open fire at the same time as the fighter, which caught fire as it bore into close distance, and after being hit by further bursts from Peart's gunners crashed in flames and exploded. Unfortunately Wing Commander Douglas, who had led No. 467 since October 1944 and had previously commanded No. 460 during the invasion of France, failed to return from this operation. A further strike against Ladbergen was ordered in daylight on 24th February. Both R.A.A.F. squadrons went out in force, but over the target they found 10-10ths cloud, and as the master bomber could not identify a suitable aiming point he abandoned the raid and no bombs were dropped.

The final act at Ladbergen was delayed for only one week, as on 3rd-4th March a slightly larger force of 222 aircraft from No. 5 Group set out with 1,000 tons of bombs. Weather was again poorer than expected at the target and the preliminary markers fell over a wide area. Good raid discipline in the face of apparently strengthened defences led to concentrated bombing of the most favourable cluster of target indicators, assessed as being close to the true aiming point. Each R.A.A.F. squadron sent 15 Lancasters, and, although crews were satisfied with their attacks, they suffered relatively heavily for the scrupulous way in which they pressed them home, the units between them losing four of the seven aircraft missing from the whole operation. Among the three crews lost by No. 467 were Wing Commander Langlois,[7] acting commanding officer, and Flying Officer Taylor,[8] the new gunnery leader.[9] The bombers faced a further hazard on return to base, for this was the night when the *Luftwaffe,* in a desperate attempt to offset the declining effectiveness of its night-fighter defences over Germany, dispatched some 140 night fighters (mainly Ju-88's) on long-range intruder tasks over Bomber Command bases. The Australians arrived at Waddington to find enemy fighters attacking the airfield. A bomb dump was set on fire but all the Lancasters landed safely.

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[6] F-O L. C. Peart, DFC, 419583; 463 Sqn. Clerk; of Shepparton, Vic; b. Shepparton, 8 Sep 1923.

[7] W Cdr E. Le P. Langlois, DFC, 416685. 150 Sqn RAF, 463 and 467 Sqns; comd 467 Sqn 1945. Engineer; of Adelaide; b. Clarence Park, SA, 25 Sep 1913. Killed in action 4 Mar 1945.

[8] F-Lt R. E. Taylor, 25299. 103 Sqn RAF, 467 Sqn. Station hand; of Hughenden, Qld; b. Cooma, NSW, 18 Sep 1913.

[9] In little more than a month No. 467 had lost two commanding officers, one flight commander and two gunnery leaders in the three attacks against communication targets at Siegen and Ladbergen.

Not so fortunate was Flying Officer Ryan[1] of No. 44 Squadron who was killed by gunfire from one of the intruders as his aircraft was preparing to land at its base.[2]

Meanwhile on 21st-22nd February Nos. 463 and 467 each sent 10 crews in a force of 154 detailed to bomb the Mitteland canal at Gravenhorst, but all brought their bombs back because the target was obscured by cloud. Nevertheless outstanding results were obtained the very next night when 167 aircraft dropped 816 tons of bombs in good weather marred only by a slight ground haze. Australian crews praised the accuracy of the target marking and the way in which the master bomber controlled the raid despite the presence of enemy fighters. Subsequent photographic assessment confirmed that bomb fall had been concentrated on a vital area where the canal retaining wall was damaged for a distance of 500 yards; a bridge had collapsed and fields on either side of the canal were again flooded; most of the repairs made since the last strike on 1st-2nd January had been wrecked.

But although militarily effective this was another costly raid, especially for No. 463 which lost three of its ten Lancasters. One, piloted by Flying Officer Farrow,[3] bombed successfully but was attacked during its return flight and seriously damaged by an unseen aircraft. The starboard wing caught fire and as the flames could not be extinguished, Farrow ordered his crew members to bale out over Holland where they landed safely. Two crews captained by Wing Commander Forbes and Flying Officer Pedersen[4] were posted as missing after this operation. Forbes had commanded No. 463 since 25th June 1944 and made an outstanding contribution, especially in training his unit in the bold but risky techniques of bombing adopted during this period by No. 5 Group. Several combats were also reported that night by pilots of No. 467. Flying Officer Boxsell[5] fired on an Me-110 which was seen attacking another Lancaster, and, as the enemy aircraft broke away in a steep dive, it was claimed as damaged. Flying Officer Smith[6] engaged an FW-190 scoring strikes along its mainplane while Flying Officer Clark[7] and his crew fired on another FW-190 damaging its engine. One of the most skilful and courageous feats was that of Flying Officer Davies,[8] a rear gunner in a Lancaster of No. 619 Squadron, who destroyed one enemy fighter, set another on fire and beat off an attack by a third.

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[1] F-O J. J. F. Ryan, 428364; 44 Sqn RAF. Pastoralist; of Booroorban, NSW; b. Echuca, Vic, 10 Jun 1911. Killed in action 4 Mar 1945.

[2] Of the *Luftwaffe* intruders, fewer than 100 penetrated overland even though the force was led by specialist navigators. They attacked in all 43 RAF aircraft including some on night-flying training. Of these 22 were destroyed and 8 damaged. One Lancaster of No. 460 on a night-flying exercise was shot down and two crew members killed.

[3] F-O G. H. Farrow, 424100; 463 Sqn. Clerk; of Bronte, NSW; b. Yorktown, SA, 18 Dec 1922.

[4] F-O L. R. Pedersen, 426237. 467 and 463 Sqns. Clerk; of Brisbane; b. Brisbane, 17 May 1924. Killed in action 21 Feb 1945.

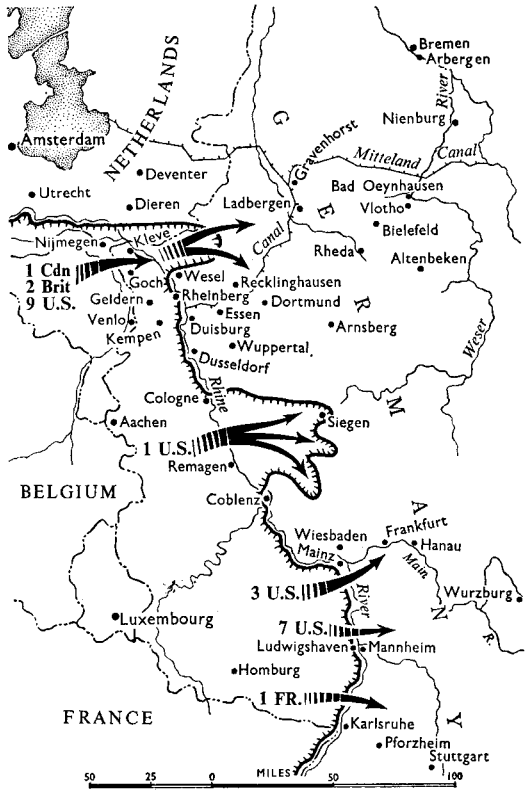
[5] F-O W. K. Boxsell, DFC, 427431; 467 Sqn. Clerk; of Leederville, WA; b. Pingelly, WA, 3 Apr 1917.

[6] F-O T. E. M. Smith, DFC, 423936; 467 Sqn. Station hand; of Nymagee, NSW; b. Dubbo, NSW, 10 Jan 1922.

[7] F-Lt J. B. Clark, 419614; 467 Sqn. Commercial traveller; of East Malvern, Vic; b. Williamstown, Vic, 26 Sep 1922.

[8] F-Lt D. J. Davies, DFC, 429880. 619 and 83 Sqns RAF. Fitter; of Sydney; b. Melbourne, 3 May 1915.

Attacks on enemy-held bridges were a constant task for the Ninth Air Force and Second T.A.F. while the Eighth Air Force pounded away at the major road and rail bridges crossing the Rhine so that German forces west of the river would be forced to fight with a poor supply line and restricted mobility. Bomber Command only became involved in this aspect of the transportation plan when SHAEF in early February proposed a line of interdiction drawn in a southward curve from Bremen to Coblenz with the object of isolating the Ruhr area. Along this line there were 18 important rail bridges or viaducts whose destruction would cut every main line running out of the Ruhr. The three most vital lines went through Altenbeken, Arnsberg and Bielefeld, and between them they carried nearly half the Ruhr traffic. These targets were, however, strong in themselves and strongly defended and of a type which in previous campaigns in France and Italy had withstood extremely heavy bomb-loads and/or repeated attacks by light, medium and fighter-bombers. The problem of eliminating them fell by natural selection to Bomber Command, generally to No. 5 Group which had made special studies of unorthodox bombing tasks, and specifically to Nos. 9 and 617 Squadrons the two units specially trained and equipped with modified aircraft capable of carrying the monster "Wallis"[9] bombs which had been produced in a variety of forms since 1943.



No. 9 Squadron went out on 6th February and again on the 14th to attack the Altenbeken railway viaduct but on each occasion had to return without bombing because of heavy, low cloud. Favoured by good weather and clear visibility on 22nd February, however, 16 Lancasters dropped 86 tons of bombs, including a good concentration of 12,000-lb Tallboys,

[9] B. N. Wallis, CBE, FRS. (1915: Artists' Rifles and RNVR.) Chief Designer Airship Dept, Vickers Ltd 1916-22; designer of airship *R.100*; later Chief of Aeronautical Research and Development, Vickers-Armstrong Ltd. B. 26 Sep 1887. Wallis designed the special mines used to breach the Mohne and Eder dams, the 10,000-lb MC, the 12,000-lb HC (Tallboy) and 22,000-lb DP (Grand Slam) bombs.

close to the viaduct. No. 617 had similar experiences with abortive strikes against the Bielefeld bridge on 6th and 14th February, followed by moderate success on the 22nd when damage was caused to the bridge, its approaches and railway tracks at the south-west end. Further projected attacks on Bielefeld failed on 9th and 13th March because of adverse weather, but an outstanding success came on 14th March when No. 617 dropped the first 22,000-lb Grand Slam bomb and it destroyed no fewer than seven spans of the bridge.

Having largely neutralised two of its main objectives Bomber Command in mid-March stepped up the tempo of its campaign and attacked six more important bridges within 10 days to create favourable conditions for Montgomery's drive across the lower Rhine timed for 24th March. On 13th, 14th and 15th March No. 9 Squadron hammered away at the Arnsberg viaduct but made no direct hits, most of the bombs falling on the east side with only minor resultant damage. No. 617 took over the task on the 19th and dropped 13 Tallboys and 6 Grand Slam bombs which straddled the viaduct with six direct hits. Flying Officer Speirs[1] saw his bomb hit the right side of the bridge at the tunnel end; another 12,000-lb bomb pierced the 20-feet thick limestone roof of the tunnel through which the railway approached the viaduct. Cameramen in the accompanying special aircraft piloted by Flight Lieutenant Perry[2] of No. 463 filmed a Grand Slam bomb on release and as it struck the western span of the viaduct. Two spans were completely cut while railway tracks were extensively damaged along the built-up embankment.

Also on 19th March No. 9 attacked the Vlotho railway bridge which spanned the River Weser some 20 miles north-east of Bielefeld, now fully repaired after American attacks with medium-calibre bombs. Fifteen Tallboys aggregating about 80 tons were dropped but only near misses were achieved although pilots went down below cloud (at 14,000 feet) in an attempt to gain bombing accuracy. However, one span of the Vlotho bridge was forced off its rollers and fell on top of the pier creating a difficult repair task; this was an acceptable level of damage in view of the short time before the Twenty-first Army Group was due to attack.

No. 617 attacked but failed to knock out the Nienburg bridge with 1,000-lb bombs on 20th March but returned two days later with 5 Grand Slam and 12 Tallboys which destroyed the bridge and the greater part of the approach viaduct. On the intervening day the same squadron had destroyed two sections and damaged a third section of the overland approach viaduct of the Arbergen bridge with 2 Grand Slams and 18 Tallboys. Finally on 23rd March No. 9 Squadron attacked Bad Oeynhausen, the twin of the Vlotho bridge, with 10 Tallboys, destroying a train and the whole railway track on the western approach. Another bomb undermined a pier on the downstream side causing one span to collapse; later erosion caused the parallel span to collapse.

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[1] F-O J. W. Speirs, DFC, 21639. 467 Sqn, 617 Sqn RAF. Clerk; of Lidcombe, NSW; b. Lidcombe, 4 Apr 1921. Killed in aircraft accident 16 Jul 1951.

[2] F-Lt T. A. Perry, DFC, 418872; 463 Sqn. Bricklayer; of Elwood, Vic; b. Windsor, Vic, 10 Oct 1914.

Despite some disappointments the two specialist squadrons had completed a brilliant campaign against seven of the most vital military communications in little less than five weeks. The significance of their achievement is underlined by the relative failure by Bomber Command main-force bombers against the Bremen bridge on 22nd and 23rd March. On the first day 82 bombers, including 18 of No. 463 and 17 of No. 467, dropped 442 tons of bombs without success, and on the 23rd No. 460 sent 9 Lancasters in a force of 113 for a second visual attack. The force was not controlled by a master bomber and no target marking was used, pilots choosing their own approach and point of aim. A total of 630 tons of bombs fell in close proximity to the bridge the accuracy of bombing being very high by normal standards but unfortunately not high enough against a bridge;[3] there was only minor damage. While the greatly superior results gained by Nos. 9 and 617 owed much to their superior bomb-loads and special training, the courage and pugnacity of its crews were also of great importance. These units had consistently attracted a high proportion of R.A.A.F. pilots, and on some raids the proportion was as high as 20 per cent. Those prominent during this series of bridge attacks were Flight Lieutenants Gavin and Sayers and Flying Officers Carey and Speirs of No. 617 and Flying Officers Williams, Arndell, Ayrton[4] and Wiley[5] of No. 9 Squadron.

The Ninth Air Force and Second T.A.F., which during January had already accounted for 37 out of 45 allotted bridge targets west of the Rhine and in Holland, turned with renewed ferocity during the better flying conditions of February and March against bridges over the Rhine and those in the Ruhr interdiction program. The enemy gave high priority to repair work and many targets were rapidly put back into use by ingenious improvisations thus making repeated attacks necessary.[6] Australian aircrew flying Mitchells and Bostons of Nos. 88, 98, 180 and 226 Squadrons made many attacks similar to the raid by 61 bombers against rail bridges at Deventer on 6th February. A total of 336 500-lb bombs was dropped and a good concentration of bursts was seen at the north end of one bridge but most bombs were overshoots, causing incidental damage and fires. This attack was pressed home in the face of fire from mobile guns with which the Germans were increasingly defending their communication routes, and one aircraft was shot down, two made forced landings and 27 were damaged by flak.

Similarly R.A.A.F. fighter pilots with forward units of Second T.A.F. had many opportunities as more and more pressure was applied. On a

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[3] Bridges had consistently proved difficult targets for medium-level and high-flying bombers. Successes had been gained especially by USAAF pattern bombing, but in relation to effort expended, only the very low-flying fighter-bomber which hurled its small bomb at point-blank range, and the exceptionally high-explosive bomb as used by Nos. 9 and 617 Squadrons had consistently proved effective against resilient bridge structures.

[4] F-O R. W. Ayrton, 424528; 9 Sqn RAF. Clerk; of Canberra; b. Neutral Bay, NSW, 6 Aug 1923.

[5] F-O J. C. Wiley, 428842; 9 Sqn RAF. Bank clerk; of Berry, NSW; b. Berry, 15 Apr 1923.

[6] Broken spans were temporarily bridged at nightfall and the sections removed at dawn to give the impression of continued damage; underwater bridges were used; rail bridges were covered with timber to permit motor traffic.

typical day late in the campaign No. 66 Squadron sent 11 Spitfires (4 R.A.A.F. pilots) to attack a rail bridge near Utrecht. One section dropped their bombs on a near-by road bridge but Flight Lieutenant Roberts led the others to the nominated target, claiming three direct hits and destruction of the rail bridge. Even as this squadron was landing No. 127 was setting off to bomb a railway bridge at Dieren. Two Australians were in this force which dive-bombed from 6,000 feet, scoring one direct hit but failing to destroy the bridge, although railway tracks at the south-west approaches were badly damaged. The same squadron made a repeat attack at Dieren three hours later with 12 500-lb and 23 250-lb bombs, but although most of them fell within 50 yards of the bridge the structure was battered but unbroken.

Complementary to specific attacks against bridges was the swarming of Allied fighters, fighter-bombers and light bombers over all the enemy trunk roads. This was expensive in terms of effort but it was an extravagance which the Allied air forces, well based and with greatly improved supply arrangements, could well afford; it had the added value of clearing the *Luftwaffe* from the whole battle area thus creating in advance the complete air superiority which Montgomery considered the prerequisite of ground attack. It was only in bad weather or at night that the enemy could use his roads or railways with any confidence and even then the night-flying groups of Second T.A.F. attempted to impose restraints. There were too few units trained for night operations, nor had adequate techniques been found to cope with the inherent difficulties of completely halting swift-moving traffic under cover of darkness, but No. 464 Squadron which at long last moved to Rosieres-en-Santerre on 5th February took up the task with enthusiasm.

At the beginning of the month targets were mainly roads, railways, barges, wooded areas thought to contain supply dumps, and factories in the area of Kempen, Rheinberg and Geldern. The Australians concentrated after 7th February on bombing and strafing road-rail junctions and villages in advance of the offensive by the First Canadian Army. In all No. 464 operated on 14 nights during the month to record 151 attacks, none of which was very conclusive in itself but which in addition to causing some new general damage undoubtedly restricted enemy freedom of movement. The squadron operated only once in daylight, on 22nd February when No. 140 Wing put out a maximum effort in support of the Clarion operation against communications throughout Germany. The Mosquitos drove much deeper into Germany than usual, ranging beyond Bremen and almost to Hamburg. Every crew found a worthwhile target in the form of rail locomotives, goods trains, junction signal boxes, canal barges and tugs, but this was a relatively costly operation. The Australians lost two crews out of 16; the sister New Zealand squadron, No. 487, lost 5 out of 18; while from the whole force of 143 Mosquitos dispatched by No. 2 Group of Second T.A.F., no fewer than 21 failed to return while another 40 were damaged by gunfire.[7] These heavy losses, coupled with the fact

[7] The complete effort of Second TAF on Clarion that day amounted to 1,700 sorties, mostly by fighters and fighter-bombers.

that the Mosquitos were the only night-flying units, militated against any repetition of the mass attack, and No. 464 resumed its normal pattern of shallower penetration and attacks by night along the northern end of the front. In March, up to the 23rd when Montgomery's break-through at Wesel was imminent, the Australians had made another 102 night attacks against rail targets, motor convoys, road centres and strongpoints.

The only exception to this total concentration by No. 464 against communications targets came on 21st March when No. 140 Wing was required to make a daylight precision attack of the type it had previously mounted at Amiens and Aarhus. This time the target was the Gestapo headquarters in the Shellhaus building at Copenhagen and the attack was at the direct request of Danish resistance leaders who feared that the Gestapo was ready to make mass arrests which would paralyse the underground liberation movement in Denmark. Six crews from each of Nos. 21, 464 and 487 Squadrons were chosen for this difficult task. Accompanied by Mustang fighters they took off early on the 21st from an airfield in Norfolk to achieve surprise by using a route across the North Sea. The force safely reached Copenhagen and attacked just before noon, scoring several direct bomb hits on the Shellhaus, even though some of the later attacks were made in error against a fire caused when one of the leading Mosquitos, making a rooftop approach, struck a pole and crashed in flames. The Gestapo headquarters was set ablaze and its records largely destroyed; some of the imprisoned Danish resistance workers escaped and there were heavy casualties among the Gestapo staff, the main politico-military aim of the raid thus being achieved. There were, however, sad overtones as more than 100 civilian lives were lost when one of the attacking aircraft crashed into a school building. In all four Mosquitos and two Mustangs failed to return, No. 464 losing two very experienced and dashing pilots—Flying Officers Dawson[8] and Palmer.[9] Since the beginning of February, when two other stalwarts, Pilot Officers Carter and Wicky,[1] had been lost on consecutive operations, eight crews had been lost—a rate of one-third of normal unit complement.

While the main emphasis throughout February and March 1945 was on attacks against Rhineland and Ruhr communications, decisions taken on 30th January at Malta by the Combined Chiefs of Staff called on the strategic air forces to attack major transport centres in eastern Germany. For the first time the Americans appeared to accept civilian morale and disruption of civil administration as a legitimate bombing objective, as second priority for attack was given to "Berlin, Leipzig, Dresden, and associated cities where heavy attack will cause great confusion in civilian evacuation from the east and hamper reinforcements". The Russians gladly accepted this plan at the subsequent Yalta conference, but the Eighth Air Force had already struck in daylight on 3rd February when 1,000

[8] F-O R. G. Dawson, 412245. 23 Sqn RAF, 464 Sqn. Confectioner; of Bangalow, NSW; b. Bellingen, NSW, 18 Sep 1917. Killed in action 21 Mar 1945.

[9] F-O J. H. Palmer, 401850; 456 Sqn, 295 Sqn RAF, 464 Sqn. Electrical engineer; of St Kilda, Vic; b. Brighton, Vic, 24 Jan 1918. Killed in action 21 Mar 1945.

[1] P-O E. G. Wicky, DFC, 422783; 464 Sqn. Bank clerk; of Manly, NSW; b. Bellingen, NSW, 28 Sep 1922. Killed in action 4 Feb 1945.

Fortresses dropped 2,250 tons of bombs against railway centres in Berlin, while 400 Liberators attacked Magdeburg. An even heavier raid by 1,200 American bombers against Berlin was made on 26th February and in the meantime the Eighth Air Force had also attacked Dresden and Chemnitz. Bomber Command while equally recognising the importance of Berlin as a transportation target, forbore to send its heavy bombers, but instead stepped up the tempo of attack by its light night-striking force of Mosquitos.

Mosquitos bombed Berlin on 14 nights during February, including the last 8 nights of the month when some 600 tons fell on the Reich capital. The campaign continued relentlessly throughout March until the night of the 27th-28th which marked the thirty-sixth successive raid without a single night's respite for Berliners from the constant wailing of air-raid sirens, the sound of anti-aircraft guns and the intermittent explosion of 4,000-lb bombs. The March total of bombs dropped on Berlin by Mosquitos was 1,800 tons, and prevention of this repetitive form of attack was beyond the capabilities of the *Luftwaffe* because it was heavily committed against other raids mounted almost nightly by Bomber Command. The experienced crews of the light night-striking force included many Australians who had shown a preference for Mosquito operations during their second bombing tour. The task was exacting and potentially dangerous in that the Mosquitos had no defensive armament, but crews began to regard this mission as the "Berlin milk run".

While transport targets and civilian resistance were being systematically ground away at Berlin, Harris on 13th-14th February turned the main fury of his Lancaster bombers against Dresden, a city on the Elbe never before rated as a major target but important now because it was an administration and communication base for German armies on the southern part of the Eastern front. The attack took place in two waves. No. 5 Group (including 15 of No. 463 and 17 of No. 467) attacked first with 244 aircraft while Nos. 1 and 3 Groups later in the night hit even harder with 529 Lancasters (24 of No. 460) against an already burning city. A combined total of 2,650 tons of bombs and incendiaries laid waste whole sections of the city, fires spreading among timbered buildings at a rate which defied the efforts of the air-raid wardens. Casualties were very high among the civilian population, thousands being trapped in cellars and suffocated in the heart of raging fires, while many more died when caught in the open by the dreadful hail of bombs in the second attack while they were attempting to flee the city after the terrors of the first. Nor did this agony end with dawn, as the U.S.A.A.F. on 14th February sent 310 Fortresses to shower another 750 tons of bombs through the vast pall of smoke still rising to 15,000 feet above Dresden. In the general devastation factories, stores and all types of rail facilities were virtually blotted out.[2]

[2] Public opinion in neutral countries was very critical of this series of raids against a city teeming with homeless refugees and having only skeleton ground defences or disaster organisations. Even many aircrew commented on the essential difference between Dresden and (say) Essen as area targets. In the face of these criticisms both Bomber Command and the USAAF took some pains to justify the attacks on the grounds that the Russians had requested neutralisation of the communications centres which had a vital if only temporary significance in their current advance into Germany.

Hard on this success at Dresden Bomber Command made a similar two-pronged attack the following night (14th-15th) against Chemnitz, an alternative major traffic centre feeding the same battlefront. On this occasion Halifax squadrons operated in the first wave; No. 466 sent out 16 crews of which 15 claimed attacks against industries and rail facilities within the city while one, because of a navigational error, bombed an unidentified target. Later in the night Lancasters, including 18 of No. 460, rekindled and spread the fires raging in Chemnitz. On 15th February in daylight the Eighth Air Force made a complementary attack, but, although civilian and industrial property suffered very badly during this series of raids, the rail facilities at Chemnitz were relatively unscathed, nor was civilian panic or general administrative breakdown as marked as at Dresden. Accordingly three weeks later on 5th-6th March Bomber Command staged a repeat area raid,[3] raising the numbers of attacking aircraft from 670 (14th-15th February) to 1,100. Again No. 460 (21 Lancasters) and No. 466 (15 Halifaxes) were the only R.A.A.F. squadrons engaged because No. 5 Group was attacking Bohlen that night. No. 460 lost one of its experienced crews headed by Squadron Leader Holmes[4] during this raid and there were contradictory reports at debriefing concerning the relative success of the attack. One Australian air gunner of No. 550 Squadron wrote in his diary: "It proved to be the longest trip we had ever made.[5] Unfortunately cloud conditions prevailed over most of the route and the target was also covered in 10-10ths cloud. P.F.F. had the target well marked and good fires were started but we couldn't see any results. A rather disappointing trip after going all that way and we were all very tired when we arrived back at base. One P.F.F. kite blew up over the target and emitted a tremendous shower of markers. . . ."

One more heavy raid designed to disrupt rail communications on the Eastern front was made on 7th-8th March by Bomber Command against Dessau, a city of 120,000 inhabitants situated south-west of Berlin and midway between Magdeburg and Leipzig. This target had the added attraction that it housed a Junkers jet-engine factory and testing base. Twenty crews of No. 460 claimed good bombing results and an uneventful trip, but some other squadrons criticised the route, which ran across the Ruhr and skirted close to Brunswick and Magdeburg, several bombers being shot down on the outward journey. But target weather was fine and early arrivals claimed that they were able to bomb the jet airfield because the runway lights were still alight. Fires were soon ablaze throughout the city which was successfully eliminated as a target on this initial raid.

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[3] The USAAF had attacked rail facilities at both Chemnitz and Dresden in daylight on 2nd March but with relatively light forces.

[4] Sqn Ldr J. C. Holmes, DFC, 405792; 460 Sqn. Woolclasser; of Brisbane; b. Brisbane, 2 Sep 1921. Killed in action 5 Mar 1945.

[5] This was the 31st trip of the first operational tour of this crew which began on 3 Oct 1944 and was to end successfully on 13 Mar 1945 after 6 attacks within 8 days—an indication of the increasing tempo of operations by Bomber Command during March 1945. On the Chemnitz raid, this crew was airborne at 4.52 p.m. on 5th March and landed at 2.12 a.m. on the 6th—a flight of 9 hours 20 minutes.

In south-eastern Germany, but without direct relevance to the Russian campaign, Bomber Command on 16th-17th March attacked both Nuremberg (for the eighth time) and Wurzburg (for the first time). Sixteen R.A.A.F. Lancasters from Binbrook went to Nuremberg and 33 from Waddington bombed Wurzburg, one crew failing to return from each raid; both attacks were successful. These raids in Bavaria were of importance to the transportation plan and reflected Bomber Command opinion that as the *Wehrmacht* retreated into Germany strategical and tactical threads of the bombing offensive must become more closely interwoven than ever before. Natural selection and the factor that heavier bomb-loads could be carried on shorter journeys had already influenced Harris, however, in seizing the opportunity of improving weather during March to strike with unprecedented fury at transportation targets on the Western front, both by night and day.

Official Allied strategy was still Eisenhower's three-pronged offensive to secure an overwhelming break-out into north Germany by the Twenty-first Army Group late in March, but new and daring possibilities opened up when units of the 9th American Armoured Division on 7th March reached the Rhine at Remagen and found that the Ludendorff railway bridge across the river was still intact.[6] A bridgehead was quickly secured on the east bank of the Rhine and plans for isolating and enveloping the whole Ruhr area took on a new emphasis. The Russians had surprisingly not pressed their offensive directly towards Berlin or in Silesia but had turned south-east to improve their hold on Balkan countries, with a view to influencing post-war political, rather than immediate military issues. To the Anglo-American forces was thus offered the opportunity to strike deep into Germany and perhaps even to Berlin itself before the main Eastern front collapsed.

Against this background of politico-military issues, only dimly comprehended by individual aircrew, Bomber Command had raided Mannheim in daylight on 1st March. Crews were awakened at 3.30 a.m. but did not take off until nearly noon on what for the vast majority was the deepest daylight penetration raid so far. No. 460 sent 25 Lancasters in the total force of 405 and, although crews had a monotonous seven hours' flight almost entirely over thick cloud, their patience was rewarded by subsequent reports of considerable and widespread damage in Mannheim, the main trans-shipment port on the upper Rhine. There was even less sleep that night for crews were alerted at 1.15 a.m. and airborne before dawn on 2nd March in a raid by 620 bombers (22 from No. 460 and 14 from No. 466) against Cologne designed to block the retreat of the enemy towards the bridges and ferries across the Rhine. Weary crews were heartened by much improved weather as they crossed into France at Boulogne; none had trouble in pinpointing themselves over the familiar "bend" in the Rhine, and some clearly identified the cathedral and the

[6] This bridge had been heavily attacked during and after the Ardennes campaign and had only recently been repaired. It was on the current list of Allied targets and, except for a last-minute cancellation, should have been bombed that very morning. Unaccountably the normal methodical enemy demolition plans failed at Remagen.

Hohenzollern Bridge as their bombs crashed into the heart of the city. Heavy damage resulted and this raid was adjudged a significant factor in disorganising enemy resistance before the city fell to the VII American Corps on 6th March.

Striking deeper into Germany by night on 8th-9th March 250 Lancasters (20 of No. 460) after struggling through heavy cloud found the skies surprisingly clear over Kassel, with the result that railway locomotive works, other rail facilities and the Henschel factories in that city suffered heavily from bombing.[7] In conformity with his basic bombing philosophy Harris was already planning a really gigantic and possibly a knockout blow against Essen. This city, which had already sustained 14 major raids, still typified for Bomber Command enemy heavy industrial capacity. It was now to be attacked while the Ruhr was being threatened on two sides by Allied ground offensives, so that it had importance also as a supply and communications centre. The raid was finally staged in daylight on Sunday, 11th March, when No. 460 provided 19 crews and Nos. 463, 466 and 467 14 each to a force of over 1,000 Lancasters and Halifaxes sent to the Ruhr; at the same time 1,200 U.S.A.A.F. heavy bombers were directed against Hamburg, Bremen and Kiel. There was a heavy overcast but the pathfinders made good use of new blue flares and red smoke-puffs to direct the attention of bomb aimers in the 100-mile bomber stream to primary objectives such as Krupps and the rail centres. It was all over within 30 minutes during which an unprecedented 4,680 tons of high explosive rained down. Australians reported that they could see no ground detail because of the cloud layer at 8,000 feet but that, after the bombing started, smoke from fires was seen forcing its way through this cloud to form a ghastly pall above it. There was no fighter and very little flak opposition from what, since the first major raids in 1943, had been regarded as the best-defended target in Germany.

This record bomb tonnage, which ensured that Essen's industrial capacity and administrative value as a supply centre was neutralised in advance of projected ground battles, was in fact a one day's wonder, for on the very next day an even more shattering blow was aimed at Dortmund. Conditions for the 1,100 bombers (20 from No. 460, 16 each from Nos. 463 and 466, 15 from No. 467) were practically the same with very few breaks in the sheet of low cloud covering western Europe, but with fine, clear and "surprisingly warm" weather above cloud (as some crews reported). Again an efficient fighter escort kept the *Luftwaffe* away from the bomber stream and again flak opposition was negligible. It was once more primarily an attack with high-explosive bombs, three out of every four aircraft carrying at least one 4,000-lb block buster in the average (Lancaster) bomb-load of 11,000 pounds. The attack began at 4.30 p.m. with an aiming point in the south of Dortmund, but switched just before 5 p.m. to the centre of the city where high-explosive bombs were used

[7] One wayward crew, late on target because of varying winds, described this as a "wizard prang" and also recorded: "On the way home we crossed over London (perhaps foolishly) and it was good to see so many lights. . . ."

to crater roads and railways and bring down on them those buildings still standing.

Smaller targets of importance to the general plan of attack on all forms of enemy road, rail and sea communications were allotted to individual groups of Bomber Command. Thus on 6th-7th March each of the Waddington squadrons sent 10 Lancasters to bomb the harbour and port installations at Sassnitz in the Baltic. No. 460 four times during February and three times early in March sent out five or six aircraft at a time to drop mines in the Heligoland Bight or along the Mecklenburg and Pomeranian coasts. The same unit on 18th-19th March attacked Hanau, a rail junction east of Frankfurt, with 22 aircraft and gained good results. On this raid the crew captained by Flying Officer Worsley[8] claimed as probably destroyed an Me-262 jet-engined fighter, of the type which six months earlier had appeared to pose a grave threat to relatively slow-flying bombers but which had been rarely employed in significant force.[9] But it was the Halifaxes of No. 466 which were called on most frequently against transportation targets in western Germany. On 8th-9th March 11 crews bombed the Blohm and Voss shipbuilding yards at Hamburg while on the 13th the squadron made its fourth daylight attack of the month when 16 Halifaxes attacked the industrial and rail centre of Barmen at Wuppertal. Reverting to night raids 10 crews attacked Homburg on the 14th-15th; 5 bombed Hagen on the 15th-16th, and 14 Witten on the 18th-19th. As the time for Montgomery's trans-Rhine offensive grew nearer 12 Halifaxes attacked railway yards at Recklinghausen in daylight on 20th March and a similar number bombed marshalling yards at Rheine next day. All these raids were successfully conducted without loss and often against weak opposition, although at Rheine very accurate flak damaged 9 out of the 12 R.A.A.F. Halifaxes.

Despite the new emphasis given to attacks against enemy communications early in 1945, Bomber Command by no means abandoned its campaign against oil targets. Rather surprisingly, with 14,000 tons of bombs during February and 19,000 during March, it expended over 25 per cent of its total effort in this way, compared with the previous peak of 14 per cent between October and December 1944. The R.A.F. bomb-load against oil objectives during these months exceeded the combined totals of the American Eighth and Fifteenth Air Forces although the Americans flew almost double the number of missions. Linked with this increase in degree was a widening of scope of Bomber Command attacks so that not only synthetic oil plants but also crude oil refineries, benzol plants and oil storage depots were bombed in this final onslaught, which reached its climax during March when plants not already eliminated were knocked out one by one and failed to recover. By the beginning of April, practically the whole German oil industry was at a standstill. The grim persistence

[8] F-Lt C. F. Worsley, DFC, 413066; 460 Sqn. Postal assistant; of Penshurst, NSW; b. Marrickville, NSW, 19 Nov 1921.

[9] Production of jet aircraft remained satisfactory throughout this period, but the inter-related factors of lack of fuel, insufficiently trained crews and combat leaders, insecure operational bases, and misuse of these fighters as ground-attack bombers, made the German jet units largely ineffective.

of the R.A.F. during the first three months of 1945 saw oil targets bombed on 21 of the 47 nights when main-force raids were mounted and on 26 of the 69 daylight operations. R.A.A.F. squadrons figured prominently in this 1945 series, participating in 34 out of a total of 74 raids. Most of the Australian raids were made at night, as was common with units of Nos. 1, 4 and 5 Groups, since the main burden of daylight attack rested with the G-H radar-equipped Lancasters of No. 3 Group.

This series of oil raids had some distinctive features both in planning and execution. The totals of aircraft employed were not high in comparison with the mass assaults on cities. The average size of a night strike against synthetic or crude oil plants was 240 bombers, while generally only half this number was used against benzol targets, and the daylight raids of No. 3 Group rarely exceeded 110 aircraft irrespective of the class of target. Enemy sensitivity and reaction to these raids was also much more apparent than at transportation or area targets,[1] as the *Luftwaffe* tried frantically but unavailingly to prevent further damage to the essential industry on which its operational existence depended.

Against synthetic oil installations, No. 466 was the most active R.A.A.F. unit, making five raids, beginning on 3rd-4th February with an attack on Wanne-Eickel. This plant had already suffered seven Bomber Command attacks (the last by No. 3 Group on 16th-17th January) but had just been repaired sufficiently to begin production at half its normal output. Of 16 crews of No. 466 who attacked through the overcast on 2nd-3rd February, 4 aimed on the glow of T.I's, which quickly disappeared below cloud, while the rest bombed on radar fixes. A large fire developed during the raid and crews claimed that, despite what had virtually been blind bombing, a fair concentration of bombs had been achieved. Harris was not satisfied, however, and ordered a repeat attack by No. 3 Group in daylight on 7th February. This took place in conditions of sleet, severe icing and poor visibility, and with only three out of every four crews making any attack at all, resulted in very scattered bombing. Thus in spite of recent attacks Wanne-Eickel was still producing at quarter rate when 220 aircraft (mainly Halifaxes of Nos. 4 and 6 Groups) made a final attack on 8th-9th February. Again No. 466 dispatched 16 crews of which one returned without attacking because of fire in the Halifax's port-inner engine. Only thin low cloud lay over the target, markers were plentiful and well grouped and a concentrated attack followed; large fires and explosions were observed.

Having successfully eliminated Wanne-Eickel as a target, Bomber Command then turned against Bohlen, a synthetic refinery south of Leipzig which had a capacity comparable to that of the larger Ruhr installations. It had been bombed several times by the Eighth Air Force commencing on 21st April 1944 but never previously by the R.A.F.; since the last U.S.A.A.F. raid on 30th November 1944 repair squads had brought most of the plant back into operation. Against this fairly distant target an above-average main force of 326 Halifaxes (Nos. 4 and 6 Groups) and

[1] With the exception of special key points such as the Dortmund-Ems canal.

42 pathfinders set out on 13th-14th February 1945 in indifferent weather. With heavy cloud obscuring the target, the master bomber instructed the illuminators not to drop their discriminatory flares and directed the Halifaxes to bomb the near edge (and later the centre) of the glow from the preliminary green target indicators. Enemy dummy target indicators were seen but all 15 crews of No. 466 were confident that they attacked the true aiming point, although they reported that, despite one large explosion and fire which lit up the area for five minutes, the general attack appeared to be rather dispersed. All R.A.A.F. aircraft returned safely, but two had to land away from base because of petrol shortage, as did several aircraft of other units.

Bohlen was too distant a target for Halifaxes in bad weather, even with a reduced bomb-load, on this occasion of two tons and a quarter per aircraft. Accordingly subsequent attacks against Bohlen were made by Lancasters of No. 5 Group beginning with a somewhat disappointing raid on 19th-20th February. Bad weather and a very efficient ground smoke-screen faced the attackers who made individual approaches from altitudes varying from 7,000 to 17,000 feet, aiming at the glow of scattered red ground markers. Waddington units contributed 35 Lancasters to this raid; six failed to attack but all returned safely. Although not concentrated directly on the Bohlen plant, nearly 1,000 tons of bombs fell in this raid—an average of 4 tons per aircraft.

The U.S.A.A.F. attacked Bohlen in daylight on 2nd March but again the installations escaped fairly lightly, so on 5th-6th March No. 5 Group again set out with 248 Lancasters against this obstinate target. There was 10-10ths cloud in layers from 2,000 to 11,000 feet and again six of the 30 R.A.A.F. crews did not bomb because they could get no reliable point of aim from the ephemeral sky markers dropped by pathfinders. Successful crews bombed from varying heights and reported the glow of fires beneath the flare pattern but could give few significant assessments of results although some low fliers claimed they saw the target through breaks in the cloud and several bursts were observed on the plant itself. On the return journey, severe icing was experienced which forced some aircraft to leave the bomber stream. Some aircraft were damaged by ice thrown off the propellers, Flying Officer Hyland[2] of No. 463 losing both fixed aerials and having his Lancaster's mid-upper turret perspex shattered.

For the Waddington units, however, this otherwise inconclusive raid was highlighted by an outstanding feat of airmanship by Flying Officer Belford[3] of No. 463. His Lancaster had begun to orbit in readiness for bombing when it was hit by heavy-calibre flak which shot away the starboard aileron, almost severed the rear spar and dislodged one of the petrol tanks. In addition a large hole was torn in the fuselage, the Loran navigation gear was jammed, both fixed aerials were severed and the elevators,

[2] F-Lt F. E. Hyland, 425941; 463 Sqn. Labourer; of Jandowae, Qld; b. Toogoolawah, Qld, 20 Jan 1922.

[3] F-O A. C. Belford, DSO, 427891; 463 Sqn. Student; of West Leederville, WA; b. Ballidu, WA, 2 Apr 1924.

fin and rudder were also hit. The stricken Lancaster rolled over to starboard and lost 1,500 feet in altitude before Belford could regain control. He ordered the crew to prepare to abandon the aircraft, but as both his mid-upper and rear gunners had been wounded, the former requiring morphia injections, he determined to rely on his strength, skill and courage in an attempt to fly at least to Alsace where the crew could bale out over Allied-held territory. Skilful navigation by Flight Sergeant Wheeler,[4] using what aids remained undamaged, brought the Lancaster to Alsace but Belford then felt confident enough to press on and attempt a landing at Juvincourt airfield. On his first attempt at landing he overshot, but on the second touched down on the starboard wheel. The flak-damaged undercarriage collapsed but Belford kept the aircraft moving on the port wheel until this was torn away in a shell hole. By this time speed had slackened and the Lancaster came to a standstill without further damage to itself or injury to the crew.

As was to be expected the Germans gave priority to repairing the Bohlen oil installations because of their relative distance from English bomber bases, and within a fortnight Bomber Command assessed that some units were again in operation. Thus on 20th-21st March No. 463 sent 16 and No. 467 17 crews in a force of 224 which in much better weather dropped 946 tons of bombs in the most concentrated of the series of attacks against Bohlen. Photographs, obtained 12 hours after the main attack, showed fires burning in various parts of the plant; apart from severe and widespread damage to vital units the internal marshalling yards had been heavily hit and it was estimated that Bohlen was unlikely to be substantially operative for at least two months. In the event, because of the progress of the armies, no further bombing attack was necessary, but this last attack was relatively costly as 10 bombers were lost, including one of No. 463 and one each piloted by Australians of Nos. 50, 57, 61, 97 and 207 Squadrons, while another Australian pilot failed to return from a small feint attack by 12 aircraft against Halle which was intended to divert enemy fighters from Bohlen.

The major, well-defended oil target of Politz was again heavily raided on 8th-9th February, by two waves totalling 468 bombers. The attack began in clear weather with concentrated bombing by 227 Lancasters of No. 5 Group (16 of No. 463, 15 of No. 467) which caused numerous fires and columns of characteristic oil smoke. Enemy fighters were active and nine bombers were shot down, despite the apparent success of a small force led by Flying Officer Laidlaw[5] of No. 106 which made a concurrent "spoof" raid on Neubrandenburg which lured part of the night-fighter force away from the true target. At the cost of a badly-damaged Lancaster, Flying Officer Wickes[6] and his crew of No. 463 claimed one Ju-88 destroyed and another damaged in attacks both before and after he

[4] F-O D. L. Wheeler, 432320; 463 Sqn. Bank clerk; of Lane Cove, NSW; b. Marrickville, NSW, 23 Sep 1924.

[5] Sqn Ldr G. F. Laidlaw, 419733. 106 and 83 Sqns RAF. Grazier; of Elmhurst, Vic; b. Ararat, Vic, 24 Jan 1923.

[6] F-O M. S. Wickes, DFC, 417733; 463 Sqn. Signwriter; of Adelaide; b. Prospect, SA, 20 Apr 1920.

bombed the target. After diving steeply to extinguish fires which threatened to consume his Lancaster, Wickes was able to fly his barely airworthy aircraft back to a perfect emergency landing at Carnaby. Flight Lieutenant Burns[7] of No. 61 was also attacked several times while he was in the target area, but on each occasion by good crew reporting and discipline he was able to outmanoeuvre the enemy fighter.

Even more meritorious was the cool courage of Flight Sergeant Sayer,[8] a wireless operator of No. 467, who subdued a raging fire in the rear part of a flak-stricken Lancaster although flames were rising almost to the roof of the fuselage and he was in danger from exploding ammunition. Finding that the hydraulic lines from the engine to the rear turret had been severed and were feeding oil into the fire, Sayer dashed through the flames, entered the turret, bent over the pipes to block them, and then made a hole in the floor to allow the oil to drain away. He then brought the main fire under control with an extinguisher.

Fires from the No. 5 Group attack wave were still burning when 241 Lancasters of Nos. 1 and 8 Groups arrived to bomb against much weaker ground and air opposition. Twenty crews of No. 460 aimed at abundant, well-placed red and green markers and, after attacks from between 12,000 and 15,000 feet, saw several oil tanks disintegrate and numerous other explosions which gave place to a trail of smoke approximately 10 miles long and rising to 8,000 feet. Bombing photographs confirmed the accuracy of their attacks and later comprehensive assessment showed that all important units had been damaged and at least 30 storage tanks destroyed. As with Bohlen it was obvious that even if the enemy made a maximum effort to repair Politz it would take several months before significant production of oil derivatives would be practicable.

Kamen, a Fischer-Tropsch unit and one of the original oil targets allotted to Bomber Command, but last attacked on 11th September 1944, now suffered four major raids within eight days. Nos. 4 and 6 Groups attacked in daylight on 24th February with 1,030 tons of bombs but, as this was a blind-bombing raid, Australian crews of No. 466 were not confident that real success had resulted. Next day and again on 1st March No. 3 Group made daylight attacks through cloud with the help of G-H, and at last on 3rd March photographs were obtained covering all three raids. Fairly heavy damage extended throughout the plant but not to a degree likely to prevent resumption of production in a few weeks, so No. 4 Group was immediately ordered to strike again that night. The raid opened punctually with good marking and accurate early bombing which started fires and gave a natural aiming-point for later crews, who saw large explosions. There was only minor enemy ground or air opposition at Kamen, but the Halifax crews returning triumphantly were met over their own bases by the surprise *Luftwaffe* intruder force. Eleven aircraft of No. 466 had landed before the intruders appeared, but, of

[7] F-Lt W. J. Burns, DFC, 428754; 61 Sqn RAF. Schoolteacher; of Broken Hill, NSW; b. Broken Hill, 2 Aug 1918.

[8] W-O R. O. Sayer, DFM, 419058; 467 Sqn. Student; of Bendigo, Vic; b. Bendigo, 17 Apr 1924.

the six still airborne, two were shot down and it was necessary to divert the others to more distant airfields. Two Australian pilots of No. 158 were attacked by fighters over The Wash and escaped with difficulty, while another Australian pilot was shot down near Woodbridge in an unhappy postscript to a most successful raid.

Concurrently with assaults on the few remaining synthetic plants R.A.A.F. squadrons made seven raids on crude oil refineries between mid-February and Montgomery's drive across the Rhine in the last week of March. The Deutsche refinery at Rositz was extensively damaged despite adverse weather when Nos. 463 and 467 attacked in a force of 220 bombers on 14th-15th February. Again in bad weather No. 4 Group raided Reisholz on 20th-21st February and, although only a scattered general bombing pattern was achieved, it was seen that the boiler house and control building were destroyed and without these key points the refinery would be out of action for six to eight weeks. On 7th-8th March the Waddington squadrons sent 27 Lancasters against the Rhenania Ossag refineries at Harburg, a raid which met especially stiff opposition from enemy fighters both at the target and on the withdrawal route.[9] Wing Commander Kemp[1] of No. 463 was compelled to break from his planned approach and descend to 1,500 feet to avoid enemy fighter flares which were continually released near his aircraft. Other pilots commented on the exceptional number of searchlights cooperating with the fighters and flak teams. All crews of Nos. 463 and 467 managed to avoid combats, but Flying Officers Jetson[2] (No. 44), Stark[3] (No. 49) and Farren[4] (No. 61) were shot down. Most importantly the enemy failed to disorganise the bomber stream and explosions and large fires were quickly caused at both refineries, a result which many attributed to the excellent work of the marking force.[5]

No. 466 had a disappointing experience the same night when Halifaxes attacked the Heide refinery which had recovered from previous American raids and whose importance was then considerable because of the continued downward trend of enemy oil supplies. Fighters were again active and five bombers were lost, but the 12 crews of No. 466 reported no combats. Unfortunately radio-telephone instructions from the master bomber could not be heard clearly by most crews and, in the resultant confusion, an attack that began well degenerated into a haphazard, scattered raid. It was necessary for the U.S.A.A.F. to attack in daylight on 20th March and Bomber Command Lancasters again the same night before this target was eliminated.

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[9] Thirteen Lancasters were shot down but 8 enemy fighters were claimed as destroyed and 3 as damaged.

[1] W Cdr K. M. Kemp, DFC, 250728. 13 and 2 Sqns; comd 463 Sqn 1945. Clerk; of Hampton, Vic; b. Clifton Hill, Vic, 9 Feb 1918.

[2] F-O E. T. Jetson, 428009; 44 Sqn RAF. Clerk; of Launceston, Tas; b. Carlton, Vic, 4 Jun 1924. Killed in action 7 Mar 1945.

[3] F-O R. W. G. Stark, 429834; 49 Sqn RAF. Manager; of Da Costa Park, SA; b. Surrey Hills, Vic, 25 Feb 1922. Killed in action 7 Mar 1945.

[4] F-O F. S. Farren, 417951; 61 Sqn RAF. Driver; of Holmesdale, SA; b. Torrensville, SA, 4 Jul 1920. Killed in action 7 Mar 1945.

[5] Sqn Ldr T. N. Scholefield of No. 97 and two Australian pilots of No. 83 contributed to this copy-book result under adverse conditions.

Only partial success was gained by No. 5 Group on 14th-15th March at Lutzkendorf when a large proportion of bombs fell not on the refinery but on the adjacent synthetic plant which was already inoperative, but No. 1 Group scored a spectacular success the next night when the Nerag-Deurag refinery at Misburg received its ninth and heaviest attack. Raid reports handed in by pilots of No. 460 refer to fires raging over a wide area and smoke rising to 10,000 feet after one very heavy explosion. Refinery records[6] show that only 7 out of more than 1,000 tons of bombs were estimated as falling in critical parts of the installations but that their effect was decisive. The boiler and power house at Nerag were damaged while the ethyl-blending section, cooling tower, power lines, tracks, tanks and control buildings at Deurag were heavily damaged. The record ends: "This attack caused an indefinite shut down."

When in desperation the Germans turned to their benzol plants for alternative supplies of liquid fuel the Allies relentlessly widened their bombing programs to include the relatively small benzol, tar oil and alcohol units dotted throughout the Ruhr and other colliery districts. Bomber Command made 6 raids during January 1945, 9 in February, 18 in March and one in April against 24 separate plants. Altogether 3,851 aircraft dropped 15,867 tons of bombs in this period against this type of target, but the R.A.A.F. squadron effort was relatively low as they joined in only 8 raids during which 93 aircraft (out of 100 dispatched) dropped 366 tons of bombs. Because of the small size and the location of the targets a large proportion of the raids was conducted in daylight by No. 3 Group. The success of night raids depended very heavily on prompt and accurate target marking and some outstanding work was done throughout this period by Squadron Leader Nicholls[7] and Flight Lieutenant Newbiggin[8] of No. 35 and Flight Lieutenants Grant[9] and Paull[1] of No. 156 Squadrons of No. 8 P.F.F. Group. Results were very hard for individual aircrews to assess, but general satisfaction was felt by No. 460 in its attacks on Bottrop (3rd-4th February), Herne near Bochum (13th-14th March) and the Bruchstrasse plant at Bochum (21st-22nd March). No. 466 bombed Nordstern on 4th-5th February and the Mathias Stinnes plant at Bottrop in daylight on 15th March. No. 5 Group squadrons did not enter the campaign against benzol units until 7th April when Nos. 463 and 467 attacked Molbis, south-east of Leipzig. By this time benzol production had practically ceased, not only because of direct damage to the batteries of coke ovens on which benzol recovery processes depended, but also because communications, water-supplies and other incidental local services had largely broken down.

[6] Quoted in US Strategic Bombing Survey, *Oil Division Final Report*, p. 85.

[7] W Cdr J. B. Nicholls, DFC, 403760. 461 Sqn, 156 and 35 Sqns RAF. Company secretary; of Lane Cove, NSW; b. Paddington, NSW, 13 Jan 1912. Nicholls played Rugby Union once for England in 1943-44 and twice for Scotland in 1944-45. He played with 7 Combined Dominions teams 2 of which he captained, and captained RAAF teams in 12 matches.

[8] F-Lt R. Newbiggin, 424673. 195 and 35 Sqns RAF. Clerk; of Newcastle, NSW; b. Newcastle, 25 Mar 1921.

[9] F-Lt T. Grant, DFC, 427381. 625 and 156 Sqns RAF. Truck driver; of Wooroloo, WA; b. Granton-on-Spey, Scotland, 12 Jul 1920.

[1] F-Lt I. G. Paull, 428351. 460 Sqn, 156 Sqn RAF. Hotel-keeper; of Moe, Vic; b. Ballan, Vic, 28 May 1918.

During the two months after the repulse of the desperate last enemy offensive in the Ardennes it was natural that popular attention was focused on Bomber Command. Record bomb-loads were carried by day and night and every bomb was by this time dropped against targets in Germany proper. The average civilian in Britain, now enjoying almost complete freedom from enemy attack, but with vivid memories of the blitz of 1940-41, saw in this crescendo of bombs hope of a quick end to the war—without querying, in general or in particular, choice of targets or methods of attack. Australian airmen also took pride in this culmination of the "big bombing" concept which the R.A.F. had adopted four years before. Those in Coastal Command were maintaining patient anti U-boat and more spectacular anti-shipping patrols which would preserve stalemate conditions rather than bring immediate victory. Fighter units, including Nos. 451 and 453, flew defensive patrols or pegged away at the enemy V-2 launching facilities; only in the vast increase in daylight bombing raids was there hope that escort fighters could again challenge the *Luftwaffe*. Many R.A.A.F. fighter pilots, especially those with Nos. 118, 122, 126, 165 and 234 squadrons, flew as escorts to No. 3 Group raids, Squadron Leader Gale of No. 165 being very prominent, but on practically each raid the mere presence of R.A.F. fighters ensured uncontested passage deeper and deeper into Germany. Men in Second T.A.F. had the satisfaction of striking at enemy communications in the battle area and hinterland of the Rhine, but their repeated blows appeared puny compared with those of Bomber Command.

No. 456 Squadron served at this time with No. 100 (Bomber Support) Group. After its move to Church Fenton on 31st December 1944 No. 456 re-equipped and retrained with Mark XXX Mosquito aircraft, a more powerful type specially designed for best performance at high altitude; it was fitted with an advanced type of air interception radar (Mk XA1), a tail warning device, long-range and drop tanks and normal armament. February 1945 was devoted to cross-country and other exercises preparatory to projected long-range escort for night bombers over Germany. The ground party left Church Fenton by train on 3rd March for Bradwell Bay which was to be the new operational base, and the squadron was thus hopelessly split when that night the enemy staged its long-planned major incursion against bomber bases in the United Kingdom. Although officially "stood down" No. 456 was called upon to fly any patrols it found practicable and, although there were no starter batteries or ground crews, five Mosquitos were scrambled within an hour of the alert. The aircraft had only one channel available on their radio-telephone transmitters, but nevertheless they patrolled for three hours, Wing Commander Howard and one other pilot chasing enemy aircraft without, however, being able to close in for deliberate attacks. The next day was a chaos of difficulty with the Mosquitos held at Church Fenton; during the afternoon the train party was ordered to return from Bradwell Bay; 50 ground crew with essential equipment were flown back by Dakotas; a petrol bowser was procured from Bomber Command, and the squadron was required to keep a night

readiness state of 10 aircraft. Enemy activity over East Anglia was resumed on a minor scale on 4th-5th March; five Mosquitos patrolled and Flying Officer Hodgen scored hits on the engine and wing of a Ju-188, but lost touch with this target when the vibration of his cannon firing caused his gunsight to fall apart, exposing the lamp and temporarily dazzling him. Another pilot also intercepted a Ju-188 but overshot on his approach, so that, although he chased the enemy low down over the sea for half an hour, visual contact was not regained. This was to be the end of this brief burst of opportunity as the *Lutfwaffe,* now having lost the element of surprise, discontinued these intruder sorties. After 10 days of fruitless vigils No. 456 finally moved on 16th March to Bradwell Bay for bomber-support duties.

No. 462 Squadron flew 155 sorties on 15 nights and one day during February and 83 sorties on 13 nights during the first three weeks of March. The combined Window-dropping and bombing raids during February were all in the Ruhr and Rhineland, mainly as decoys from the true target chosen that night but sometimes purely to confuse enemy raid reporting systems when no actual attack was contemplated. By its very nature this "coat-trailing" was hazardous, but crews intruded and withdrew safely with conspicuous success until 24th-25th February when four out of ten Halifaxes sent to the Ruhr failed to return. Operations were more varied during March, with Kaiserlautern, Emden, Rostock, Bremen and Munster appearing as spoof targets in addition to the familiar Ruhr cities. On 3rd-4th March eight crews released Window and dropped both flares and target indicators in the Dortmund-Ems canal area as cover for attack by specialist squadrons. While still waiting for their special aircraft fitted with sophisticated electronic jammers, the Australians showed great resource in improving techniques for these simulated phantom raids.

CHAPTER 18

THE LAST BATTLES: THE WAY HOME

BY mid-March the pessimism created by the slugging battles during the winter in the Ardennes was swept away by a new conviction among Allied military leaders that a swift end to the European war was not only possible but inevitable. Army and air force commanders vied with each other to exert the maximum pressure before the final German collapse. Although not free from political and prestige undertones, the tactical improvisations made (especially by American army commanders) within the general framework of General Eisenhower's three-phase strategy, resulted in hammer blows along the length of the River Rhine, against none of which could the *Wehrmacht* assemble adequate reserves. Despite Goebbels' propaganda call for the whole German nation to fight the invaders, despite preparations for demolition and scorched earth in the Rhineland, and notwithstanding the productive genius of Speer, the Germans had neither the men nor the material to prevent the surge forward of the Allied armies in good campaigning weather. For their part Eisenhower's armies were no longer faced with the logistics problem which had halted them six months earlier before the Rhine, after their helter-skelter dash across France. Generals Bradley, Patton and Patch were now assured of adequate independent strength to exploit any local break-through they might achieve without (as had happened at Arnhem) seriously prejudicing each others' or Montgomery's own plans.

In fact the balance of forces was such that each opportunist American attack so preoccupied enemy reserves that the projected main drive by General Montgomery across the lower Rhine at Wesel was materially assisted. The First American Army, by its brilliant coup in seizing the Ludendorff rail bridge at Remagen on 7th March, created a bridgehead across the Rhine against which the enemy for two weeks, desperately but unavailingly, committed main elements of 11 divisions subjected to constant Allied air attack. By 24th March when Montgomery was due to attack farther north, the Remagen bridgehead was 10 miles in depth and 35 miles long. Meanwhile Patton, masterful, flamboyant and quick to seize an opportunity, on 15th March began a drive across the lower Moselle, which quickly developed into a charge of armoured units through the Hunsruck, and on the 22nd forced a second crossing of the Rhine at Oppenheim, not only bottling up in the Saar substantial enemy forces, which throughout the winter had defied all head-on attacks, but also making it imperative for Hitler to draw further on his reserves east of the Rhine.

Montgomery's methodical and elaborate preparations for launching the Twenty-first Army Group across the lower Rhine at Wesel were timed for 24th March and entailed heavy commitments for both the R.A.F. and U.S.A.A.F. Air attack against communications during March became

progressively selective in terms of Twenty-first Army Group requirements, while the heavy Bomber Command assaults on the Ruhr were deliberately made to influence the tactical as well as the strategical issues at this time. During the last few days before 24th March the U.S.A.A.F. and Second T.A.F. also attacked German airfields, camps and barracks and anti-aircraft batteries beyond the range of Montgomery's own artillery. All air forces were alerted to be ready to take part in the actual assault by which Montgomery hoped to cross the most formidable water-barrier in western Europe and seize a bridgehead from which his troops could debouch into the heart of Germany. Fundamental to the attack plan based on Montgomery's assessment of enemy capabilities[1] was an ambitious airborne operation by which two divisions of troops would be landed in the middle of a battle in zones deliberately chosen within the range of opposing artillery. The ground operation was given the code name "Plunder" and the supporting airborne operation "Varsity".

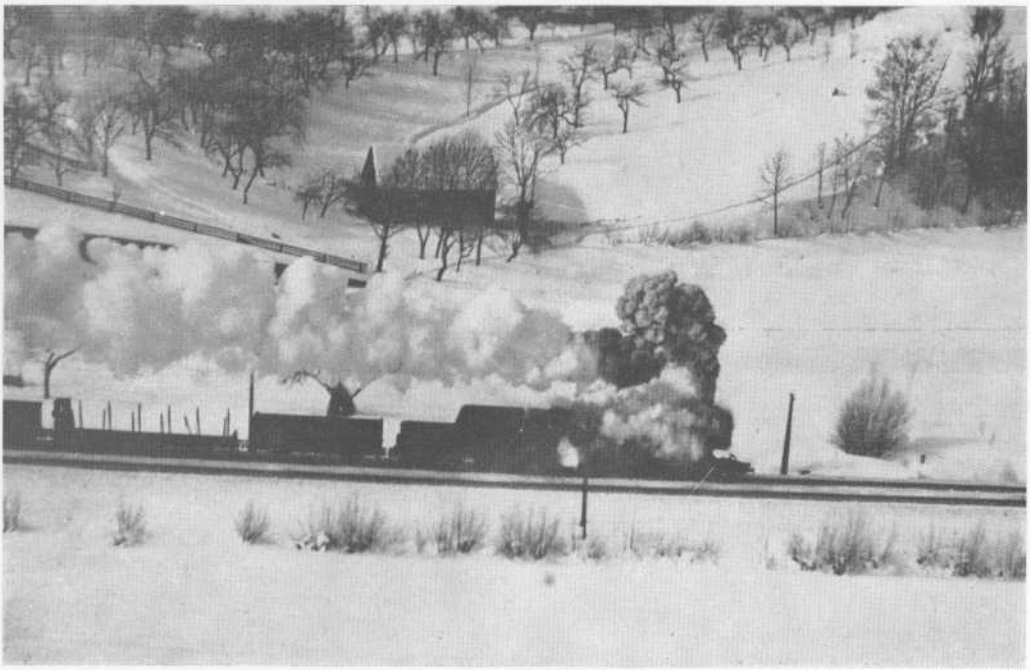
Operation Plunder began well during the night of 23rd-24th March with the 1st Commando Brigade slipping across the river and waiting on the outskirts of Wesel under cover of a tremendous artillery bombardment until R.A.F. Bomber Command arrived overhead to drop more than 1,000 tons of bombs on the town.[2] Sixteen Lancasters from each of the R.A.A.F. Waddington squadrons operated on this raid and crews returned confident that all resistance in the town had been at least temporarily paralysed. This massive air bombardment, unlike earlier assaults at Cassino and Caen, was not wasted, because the commandos were ready to advance immediately through the shattered defences of Wesel and quickly overran the whole town. Meanwhile two divisions of the Second Army and another two of the Ninth American Army dashed across the river in the wake of the commandos and fanned out on the east bank of the Rhine on each side of Wesel, meeting only very light opposition.

The airborne operation also began with an augury of fine weather. Since Arnhem the 10 squadrons of No. 38 Group and the 6 of No. 46 Group had been engaged on S.O.E. and S.A.S.[3] operations over Norway, Denmark, Holland and Germany, but had also spent long hours on general and specialised training for Varsity. By retention of tour-expired crews, accelerated training of new crews and a bold decision to use training aircraft on this operation, No. 38 Group was able to muster 320 and No. 46 Group 120 aircraft to tow the gliders carrying the main elements of the 6th British Airborne Division. The American IX Troop Carrier Command undertook responsibility for all parachute troops, enabling Varsity to be planned as a one-lift operation, the complete force being

[1] German forces in this sector were actually much weaker than expected.

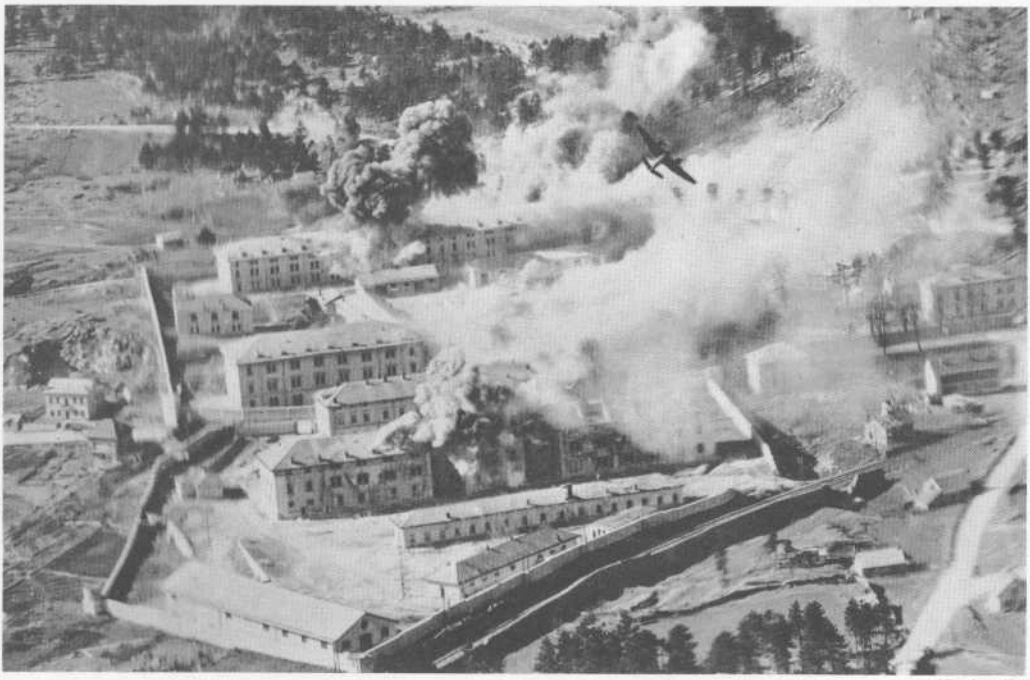
[2] A smaller force of 77 Lancasters had bombed Wesel in mid-afternoon on the 23rd; the town had already been extensively damaged by previous attacks on 16th, 18th and 19th February and 6th and 6th-7th March.

[3] Special Operations Executive (SOE) was set up in July 1940 to coordinate all action by way of subversion and sabotage against the enemy overseas. No. 419 (Lysander) Flight was allotted to SOE and other clandestine organisations to assist in their work in Europe. Special Air Service (SAS) was a similar organisation whose members wore uniform and were in contact with the Maquis and the French Forces of the Interior.



(*R.A.A.F.*)

Escaping steam indicates a direct hit by a Mustang of Balkan Air Force in an attack on a locomotive in the Maribor district of Yugoslavia.



(*R.A.A.F.*)

A S.A.A.F. Beaufighter banks away after releasing its rockets during a strike by Balkan Air Force on the German barracks at Postumia, 23 miles east of Trieste, on 23rd March 1945.



(*R.A.A.F.*)

Hamburg in April 1945. From January 1942 to April 1945 the city sustained 17 main-force attacks by Bomber Command; over 16,000 tons of bombs were dropped, resulting in the destruction of 75 per cent of the built-up (target) area.



(*R.A.A.F.*)

Flying the black flag, designated by the Allies as the symbol of surrender, this U-boat was directed to a naval escort group by a Sunderland of No. 461 Squadron piloted by F-Lt R. R. Alexander, 11th May 1945.

put down on D-day. Another valuable lesson learnt from experience at Arnhem was the decision to make every endeavour to land individual parties as close as possible to their precise objectives. Parachutists were carefully briefed to seize particular road and rail junctions and some key buildings, while glider parties were to be set down adjacent to nominated road and rail bridges over the River Yssel to seize the town of Hamminkeln, five miles north of Wesel, and prepare an area for divisional headquarters. This new "tactical" method of landing troops had the additional advantage of dispersing gliders over a greater area, thus increasing the enemy's anti-aircraft defence problem. The Allies were also in a position to give much more positive aerial support to the transport aircraft than at Arnhem. Apart from continued weakening of *Luftwaffe* day-fighter effort, Second T.A.F. now had the bases, high-performance aircraft and logistics to give almost complete cover in fair weather. Enemy bases had already been bombed and strafed but they were also closely patrolled on D-day while artillery fire and fighter-bombers hammered at enemy flak positions until the vast stream of tugs, gliders and parachute transports with its attendant fighter escort had crossed the Rhine.

Meticulous planning was rewarded by outstanding results. Only one out of 440 R.A.F. tug-glider combinations failed to take the air, and, unmolested by enemy fighters, all reached the release area north of Wesel in good order. Two difficulties then arose. Visibility was poor because of smoke and dust from the artillery anti-flak barrage, fires on the ground, and the general "fog of war". Glider pilots had difficulty in locating their exact landing positions after release and there was a tendency for the 6th Airborne Division's gliders to overshoot to the south into the 17th American Division's area. Also although over 1,200 Thunderbolts and Mustangs had swept ahead to harass German gunners, tug and glider pilots were badly harassed by anti-aircraft fire. Nevertheless 387 (92 per cent) of R.A.F. aircraft successfully released their gliders shortly after 10 a.m. and within five hours and a half the 6th Airborne Division had captured all its objectives, including six undamaged bridges over the Yssel, taken 600 prisoners and established firm contact with the 15th Scottish Division. Planned re-supply air drops were cancelled because of this favourable ground situation, and by 25th March the airborne division, having consolidated its positions, was ready to make a swift advance eastwards.

R.A.A.F. aircrew representation in operation Varsity was approximately the same as at Arnhem; there were no complete R.A.A.F. crews but almost 200 individuals, with strong emphasis on the pilot and navigator musterings, were scattered among the units of Nos. 38 and 46 Groups. Among those who specially distinguished themselves was Flight Lieutenant Hyne[4] of No. 233, already a veteran of Normandy and Arnhem airborne operations. Most of the raid reports are laconic but several Australians serving with No. 271 gave fragmentary comments which, in conjunction,

[4] F-Lt R. R. C. Hyne, DFC, 420201; 233 Sqn RAF. Salesman; of Riverstone, NSW; b. Sydney, 24 Jun 1923.

afford a typical aircrew reaction. Flying Officer O'Donnell[5] was the pilot of the first Dakota to get back to base, and his navigator, Flying Officer Holdsworth,[6] reported that he saw 40 gliders released in one batch within 30 seconds: "We saw the gun flashes from the east bank of the Rhine. The noise of battle was so great that I heard it faintly even above the roar of our own engines." Flying Officer White[7] had his aircraft holed five times by flak just before he slipped his tow. A navigator, Flying Officer Jungwirth,[8] reported: "The R.A.F. Dakotas towing their gliders came in three gigantic streams. Over to one side we saw the American Dakotas carrying paratroops. Ahead and below were the Typhoons blasting German flak positions while above us were the Tempests, Spitfires and Thunderbolts. . . . We released our gliders, pulled up sharp to dodge the pieces of another Dakota which blew up right in front of us, and then turned back."

Eisenhower personally watched the operation from observation posts west of the Rhine and admired "the courage of transport pilots flying relatively slow aircraft steadily along their allotted routes in spite of heavy flak barrages".[9] Surprisingly only 7 tugs and 10 gliders were shot down but 32 transports and nearly 300 gliders were damaged in some degree. Flight Lieutenant Vanrenen[1] of No. 196 Squadron was one who arrived after German gunners had recovered from their initial surprise. His aircraft was badly hit over the landing zone, two of his four engines failed, and he, his navigator and his wireless operator were all wounded. Undaunted, Vanrenen struggled back across the Rhine where he made a masterly forced landing in friendly territory, and refused any assistance himself until his wounded comrades had received medical treatment.

The brilliant results of operation Varsity reflected the very great strides made since June 1944 in the planning and execution of airborne landings, but this success, in helping to breach the last formidable enemy defences in the west, brought a virtual end to the requirement for such operations. R.A.A.F. aircrew did participate in two subsequent planned mass transport flights, but their importance was minor. On 7th-8th April (operation "Amherst") 47 Stirlings of No. 38 Group dropped S.A.S. troops, supply containers and simulators from 1,500 feet above low cloud and fog in enemy rear areas during the advance through Holland of the First Canadian Army. The object was to cause maximum confusion to German communications; to rally Dutch resistance forces and to provide Intelligence reports. Parachute drops were made on radar fixes and the average error was nearly three miles and a half, but in poor weather and the rapidly

[5] F-O K. P. O'Donnell, 411810; 271 Sqn RAF. Trainee engineer; of Marrickville, NSW; b. Sydney, 30 Jun 1920.

[6] F-O T. R. Holdsworth, 410983; 271 Sqn RAF. Police constable; of Elsternwick, Vic; b. Carlton, Vic, 6 Jan 1917.

[7] F-O A. L. White, AFC, 407265. 52 and 233 Sqns RAF. Storekeeper; of Aldgate, SA; b. Broken Hill, NSW, 1 Jul 1918.

[8] F-O H. C. Jungwirth, 410550; 271 Sqn RAF. Munition worker; of Melbourne; b. Ringwood, Vic, 6 Feb 1922.

[9] *Report by SCAEF to COS*, p. 123.

[1] F-Lt H. P. Vanrenen, DFC, 409258; 196 Sqn RAF. Station hand; of Logan, Vic; b. Melbourne, 25 Dec 1913.

disintegrating enemy military position this was considered satisfactory. All aircraft returned safely. Another airborne operation ("Doomsday") was planned to transport the 1st British Airborne Division to Oslo and Stavanger within four days of any impending German collapse in Norway. Extremely grave political and administrative repercussions were feared after enemy capitulation unless strong Allied forces were on hand. In the event these fears were groundless and Doomsday became a leisurely series of 899 flights by Stirlings and Halifaxes of No. 38 Group, lasting not four days but spread between 8th and 27th May.

In addition to the 200 R.A.F. and 670 American Ninth Air Force fighter sorties escorting glider and parachute trains, on 24th March 900 aircraft of Second T.A.F. gave front-line cover and escort while 1,250 American Eighth Air Force fighters thrust deep into Germany to the east. Practically the entire strength of Allied strategic and tactical air forces had some part in a fantastic day, and in all some 8,000 sorties were recorded over Germany, to which the *Luftwaffe* could reply with fewer than 200. The American Fifteenth Air Force from Italian bases made a grand diversionary attack on Berlin, while 1,400 bombers of the Eighth hit again at 16 damaged airfields in western Germany. The Ninth Air Force and Second T.A.F. pounded away at marshalling yards, bridges and troop concentrations while Bomber Command mounted obliteration raids against Gladbeck and Sterkrade. Yet so great was Allied air potential at this time that R.A.A.F. squadrons were by no means unusually active on 24th March. Only one bomber unit operated in daylight, No. 466 sending 12 Halifaxes to Gladbeck; none operated the following night. The two fighter-bomber squadrons (Nos. 451 and 453) dispatched 20 and 24 sorties respectively against railway targets in the Alphen-Utrecht area. One Mosquito squadron (No. 456) was temporarily out of the line and No. 464 was asked to supply only its normal effort on both the night preceding and that following the main assault.

Nor were the Australians very busy next week, during which time the Twenty-first Army Group expanded its bridgehead and then surged forward to link up with American forces at Paderborn on 1st April, thus physically encircling the Ruhr. No. 451 Squadron operated only on 27th and 31st March with a meagre total of 36 sorties against rail targets in Holland; No. 453 flew 79 sorties on the 25th, 27th, 30th and 31st but made only minor claims of damage arising from bombing and strafing raids. Although based in France No. 464 was inactive between the 24th-25th and 29th-30th as Montgomery's troops pressed across the Rhine, but then flew 9, 12 and 12 sorties respectively on the next three nights during the general advance into Westphalia. With enemy ground and air forces both unable to prevent a general collapse of the Rhineland defences, there was no occasion for the heavy bombers to join in the battle. Instead No. 460 in daylight on 25th March sent 17 Lancasters to bomb marshalling yards at Hanover, another 19 against road and rail junctions at Paderborn on the 27th, and 13 attacked the Blohm and Voss submarine building yards at Hamburg on 31st March. The Waddington squadrons made

only one raid, also in daylight during this week, Nos. 463 and 467 providing 16 and 18 crews respectively in a total force of 95 Lancasters which bombed underground oil storage facilities at Farge, near Bremen, on 27th March while at the same time No. 617 Squadron aimed 12,000-lb bombs at adjacent U-boat pens. No. 466 bombed Munster on 25th March but was then inactive for 10 days. The only R.A.A.F. bomber unit to operate at night was No. 462 which sent 5 Halifaxes to the Ruhr on the 24th-25th, 9 to Bremerhaven on the 27th-28th and 6 to Stade, near Hamburg, on 30th-31st March to release Window, target indicators and incendiary bombs. There were no losses on either the daylight or night raids and only one reported combat—on 24th-25th March when Pilot Officer Ball[2] and his crew claimed damage to an FW-190 which approached while he was over the Ruhr.

On 31st March came an official announcement of the end of the Empire Air Training Scheme. In fact very few R.A.A.F. aircrew had arrived in the United Kingdom during the preceding nine months so there was little impact on the position of R.A.A.F. units overseas, although inevitably in Australia it produced large surplus stocks both of semi-trained aircrew and of instructors. This announcement showed confidence not only that victory in Europe was impending, but that adequate reserves of trained aircrew were already available for future needs in the Pacific area. The gloom of January had given place to a supreme optimism justified by the position on the ground and the apparent anomaly that it was becoming increasingly difficult to find adequate targets for the tremendous Anglo-American air forces concentrated in Europe. The potential striking power was far greater than it had ever been at the very moment when, with the *Luftwaffe* a spent force, and large areas in both eastern and western Germany falling into Allied hands, air tasks were diminishing. Although, as has been seen, individual units were by no means overtaxed, March 1945 had proved a fantastic month for air operations. Tactical air forces under Eisenhower's control dispatched nearly 94,000 sorties that month of which some 88,000 were rated as effective. Bomber Command dropped 68,000 tons of bombs, the largest monthly total of the war, while the U.S.A.A.F., which had been reinforced to a frontline strength of 4,000, dropped another 66,000 tons. Both the R.A.F. and U.S.A.A.F. by this time operated sufficient long-range Mustang fighters to ensure safe escort of relatively slow bombers (designed for night operations) to any part of Germany in full daylight. Although there were occasional local shortages in particular types of bombs or equipment or of specialist aircrew or ground crew categories, the general picture was of abundance.

Rapidly changing circumstances brought some changes in utilisation of this air effort which were only belatedly reflected in official directives. The tactical air forces (American Ninth, Second T.A.F. and American First T.A.F.) as handmaidens of the armies continued throughout April

[2] P-O A. D. J. Ball, 427182; 462 Sqn. Junior clerk; of Leederville, WA; b. Perth, WA, 11 Apr 1924. Killed in action 10 Apr 1945.

to bomb, strafe and patrol in the rear of the rapidly disintegrating German armies and achieved a grand total of 80,000 sorties for the month. Only 478 Allied tactical aircraft were lost in combat and 1,516 damaged, mostly as a result of flak. The average daily strength of this force was over 4,000 aircraft and an even higher effort would have been practicable had it been required. Set against such impressive totals the R.A.A.F. effort, whether of individuals sprinkled among almost every unit of Second T.A.F. or of the single R.A.A.F. squadron (No. 464) based in France, is hopelessly swamped. But although the factors of numerical superiority, good flying weather and the general military situation all favoured the Allies, the paralysing and shattering impact of tactical air power still depended on the aggressive spirit and efficiency of individual aircrew, and to the impressive successes Australians made their modest contribution and did not suffer by comparison with others.

On each of the first nine nights of April, No. 464 harassed enemy movements in Holland and western Germany, recording on 6th-7th April a total of 2,000 sorties since the invasion of Normandy. On 10th April the squadron went out in daylight but reverted to night operations on the 11th-12th and completed another 12 forays in strength before the end of the month. Each of these night operations averaged 12 sorties and the monthly total was 257, the best tally since the previous autumn. Patrol efficiency increased considerably late in the month as the squadron moved forward on 18th April to Melsbrock near Brussels. Actual results of individual bombing or strafing attacks were very difficult to assess but, as an example of the pugnacity with which attacks were pressed home, one Mosquito returned to base on the 20th-21st with a hole in its port wing, caused by the blast of its own bombs as the crew went down to treetop level to attack road vehicles. Two crews failed to return from patrolling on the 23rd-24th but on the following night a very successful operation was staged resulting in attacks on no fewer than 12 trains, all of which were claimed as damaged in some degree. Squadron morale had already been boosted on 17th April when Flight Lieutenant McClelland[3] took part in an attack by six Mosquitos of No. 140 Wing against a Gestapo headquarters at Odense, on an island off the coast of Denmark. The main building was totally destroyed and, although McClelland's aircraft was damaged while in the target area, he made a safe forced landing at Eindhoven.

Under cover of this impressive tactical air cover the Allied ground armies surged forward without serious interruption throughout April. One thrust by the First Canadian Army through Arnhem reached the Zuyder Zee on 18th April, sealing off large enemy forces in western Holland;[4] other Canadian units drove north-east towards Emden which was reached early in May. Meanwhile the Second British Army headed direct for

[3] F-Lt W. R. M. McClelland, 68191 RAF; 464 Sqn. Librarian; of Sherwood, England; b. Nottingham, England, 17 Sep 1914.

[4] The Canadians halted their drive at this point, fearing that, if they attacked instead of merely containing the Germans in this area, enemy troops would destroy dikes and inundate further large areas of the already badly-flooded country.

Hamburg, captured Bremen on 26th April, crossed the Elbe with surprising ease on 29th April, then moved against Kiel and Lubeck. The Ninth American Army to the north of the Ruhr captured Hanover on 10th April, Brunswick two days later, and Magdeburg on the 18th, but then halted on the line of the Elbe River; the First American Army, south of the Ruhr, headed through Kassel, Nordhausen, Halle and Leipzig, making contact with Russian troops at Torgau on the Elbe on 25th April. Patton's Third Army met only slight opposition as it tore across the enemy southern flank, capturing Erfurt on 12th April and then turning south-east into Czechoslovakia and on to the Danube Valley. Even farther south the Seventh American and First French Armies in the second half of April raced through Wurttemberg and Bavaria to the Austrian Tirol and the Brenner Pass.



It was not surprising therefore that substantial employment was lacking even for tactical air units in May 1945. Hitler suicided in Berlin on 30th April and it was clear that his successors, now free of their fanatical personal oath to the *Fuehrer,* would seek an early compromise peace to save further suffering for the German people. No. 2 Group R.A.F. maintained a precautionary level of some 500 sorties each day until the Armistice was signed, but No. 464, after one night patrol of 13 aircraft on 2nd May against the usual road and rail traffic and facilities targets, found that all its subsequent planned operations were cancelled in the light of a general surrender of enemy armies in north-west Germany, Holland and Denmark. Inactivity had beset the United Kingdom-based fighter-bomber units (Nos. 451 and 453) much earlier, since the last A-4 rocket and the last V-1 flying bomb were launched against England on 27th and 29th March respectively and their launching sites were soon afterwards overrun by Allied armies. Transport targets for the Australian fighter-bombers also declined, Nos. 451 and 453 making their last attack on rail targets in Holland on 3rd April. Both squadrons moved to R.A.F. Station Lympne on 6th April and three days later arranged to operate

from forward airfields on the Continent. Desire to participate was greater than need, however, and the Australians were called on for only routine bomber escort missions against four targets (Bayreuth, Swinemunde, Heligoland and Wangerooge) which the German Air Force made no attempt to defend. The operational effort of No. 453 thus fell dramatically from 441 offensive flights during March to 67 almost purely defensive sorties during April. In May, except for an air-sea rescue search on the 1st, and an escort provided on the 3rd for a Dakota carrying Queen Wilhelmina back to the Netherlands, there were no flights which could be classed as operational. Similarly No. 451 flew only 61 sorties during April and none in May before the Armistice.

In these final stages of the war the experience of crews of No. 456 Squadron was more stimulating. Very little operational flying had been possible during January 1945; the unit was out of the line during February and was held in reserve during most of March in case the *Luftwaffe* should persevere with its night intruder raids on R.A.F. bomber bases. All this had caused crews to chafe at inactivity, but on 27th-28th March Squadron Leader C. S. Samson led the first night ranger operation over Germany from Bradwell Bay. The only result was the destruction of a single motor-truck which burst into flames after being hit by cannon fire, but the Australians rejoiced in the possibilities of some offensive action in their new role of night-bomber support. No enemy aircraft were in fact met during the two nights in March and seventeen in April when small forces of up to seven Mosquitos flew patrols over Germany and Norway, but there was a steady stream of claims of damage against trains, signal boxes, road vehicles and grounded aircraft which made the Australians feel that they had some small personal part in the rapidly developing final collapse of Germany. Some 87 sorties on bomber support-ranger duties were completed before 25th April when the squadron once more became inactive since neither its defensive nor offensive role had any real significance in view of the general military situation. In common with many other units, No. 456 spent the last fortnight of the war engaged on non-operational flying duties only.

Meanwhile as early as mid-March 1945, at the very moment of peak effort and dramatic successes, urgent thought had been given to restating the role of the heavy bomber in the penultimate stage of the European conflict. The all-too-successful obliteration of Dresden stirred both foreign and domestic public opinion to protest against what might be construed as area bombing for area bombing's sake. Military and political planners began to fear that victory would bring to the Allies the problems of an utterly ruined Germany, incapable of housing or sustaining its civilian population which would then lapse into anarchy. Although the chief criticism was of area bombing it was also considered that the main objectives of both the oil and communications plans had been accomplished before the end of March. The Chiefs of Staff concluded early in April that the primary object of bombing should be in direct support of the armies, but as no requirement arose for set-piece "aerial artillery"

bombing on a fluid battlefront, this was in fact construed as authority to bomb heavily enemy communications having temporary tactical importance. It ruled out strategic area bombing *per se* while permitting incidental damage to built-up areas near priority tactical targets; moreover it could be construed as justification to destroy the last elements of the German fuel production and storage facilities. Formal directives incorporating the new policy appeared only late in April, but the policy itself was virtually in force from the beginning of that month.

With this general realisation that the strategic mission of Bomber Command was almost completed, strong forces operated on only 11 nights and 10 days in April, with some minor bombing activity also on 23 nights and 4 days. The total bomb-fall was nearly 35,000 tons, approximately half that of the record achieved the previous month. Distribution of bomb tonnages between competing target systems naturally showed some marked changes, with naval targets (ports, installations and shipping) attracting 14,000 tons; tactical army targets 6,500 tons; railway centres 6,000 tons, and oil 5,000 tons, while the night striking force of Mosquitos dropped a further 2,000 tons in widespread forays which included 15 nuisance raids on Berlin before Russian forces arrived there late in the month. R.A.A.F. heavy-bomber units flew only 569 out of the total of some 14,000 sorties during the month but made a contribution to some of the most interesting attacks. As could be expected No. 460, with its three-flight structure, made the greatest R.A.A.F. effort with 139 sorties,[5] beginning with a daylight raid against enemy barracks at Nordhausen. Its next tactical target was struck on 14th-15th April when 15 crews set out to attack Potsdam. One crew returned early because of engine failure and the Lancaster piloted by Flying Officer Worsley was attacked and damaged by an unidentified fighter before he reached the target, but although the flight engineer was killed and one engine totally and two others temporarily failed, Worsley was able to bomb the target with the other squadron crews and he returned safely. Twenty-three aircraft took off on 22nd April to attack strongpoints, barracks and troops at Bremen, then Montgomery's immediate prime target, but the mission was abandoned because cloud obscured the aiming points.

Anzac Day brought No. 460 another tactical target—in fact the squadron's last raid, but one of particular appeal. Throughout the month as Allied armies swept in from east and west, German propaganda had repeatedly claimed the existence of an impregnable "National Redoubt" in the Harz Mountains area into which German armies would retreat and be able to hold out indefinitely. Although largely false these claims led to requests for a very heavy bombing raid on the *Fuehrer's* notorious "Eagle's Nest" and the S.S. barracks at Berchtesgaden—at once the symbol of fanatical Nazism and the probable headquarters of the Redoubt. Twenty crews of No. 460, who made the long afternoon flight, bombed with particular care the tiny speck of the Eagle's Nest lying amidst Czech

[5] On 9th-10th April 1945 No. 460 passed a tally of 5,000 operational sorties since its conversion to Lancaster aircraft.

forced-labour camps in the snow-capped mountains. Jubilation at a successful raid against an odious target was somewhat marred by the loss of one R.A.A.F. Lancaster, but it was later learnt that all the crew were safe because of an almost superhuman feat of airmanship by the pilot, Flying Officer Payne.[6] His aircraft was one of the last to bomb and was somewhat isolated as he made a scrupulously careful run-up. Three seconds after releasing its load, the Lancaster received nine direct flak hits. Bomb doors and the starboard-inner engine were blown away, both outer engines were aflame, the wings and fuselage pierced and much damage done to the cockpit instruments and controls. While fighting to maintain control Payne ordered his crew to bale out, but on his way from his tail position, the rear gunner's parachute caught on a piece of torn metal and burst from its pack inside the aircraft. Although the aircraft was already on fire with petrol and oil swilling around the fuselage, Payne, as soon as he realised the gunner's plight, elected without hesitation to remain himself in an attempt to save his comrade. The shattered and burning Lancaster plunged madly down into the mountainous terrain in which no forced landing would seem practicable, but nevertheless Payne was able to regain sufficient control before he reached ground level to skim over telegraph wires and make a crash-landing from which both he and the gunner escaped alive.

No. 460 made its last contribution to the oil campaign on 4th-5th April during the second R.A.F. attack on the twin crude oil refining and synthetic production plants at Lutzkendorf. A satisfactory raid developed in clearing weather after the crews had flown their outward route in somewhat indifferent conditions. Even so observation of bombing was hampered by black smoke which rose early during the attack and the 14 R.A.A.F. crews which bombed at moderate level (11,000 to 14,000 feet) saw no spectacular results. On this raid Flying Officer Wilson[7] and his crew of No. 626 claimed damage to an FW-190, and Pilot Officer Dunn[8] of No. 166 had his Lancaster hit by flak; but although 6 aircraft (out of 233) failed to return from this raid, the only R.A.A.F. loss was one aircraft which crashed on return. The remainder of the month's activity concerned the naval targets: on the 4th-5th, 9th-10th and 13th-14th No. 460 laid mines in the Baltic; on the 9th-10th 12 crews took part in an attack on shipyards at Kiel; while on the 18th a maximum effort of 25 Lancasters was sent out for a mass daylight attack on the naval base and fortress island of Heligoland.

By contrast Nos. 463 and 467 attacked only one tactical military target. On 4th April, 20 and 18 Lancasters respectively struck at road and rail communications around Nordhausen as a follow-up to the attack against troop concentrations the previous day. Four raids were made on oil objectives: the Molbis benzol plant and thermal power station on

[6] F-O H. G. Payne, 436344; 460 Sqn. Farmer; of Nungarin, WA; b. Nungarin, 18 Jun 1920.

[7] F-O L. C. Wilson, DFC, 40566; 626 Sqn RAF. Dispatch clerk; of Northcote, Vic; b. Shepparton, Vic, 3 Dec 1922.

[8] F-O A. J. Dunn, 429046; 166 Sqn RAF. Clerk; of Balgowlah, NSW; b. Singleton, NSW, 22 Jan 1922.

the 7th-8th, Lutzkendorf on the 8th-9th, and oil storage tanks at Hamburg in daylight on 9th April, and at Tonsberg Vallo in southern Norway by night on 25th-26th April. Until attacked Molbis was the last remaining oil target of any importance left in Germany which still produced to its full capacity, 10 other benzol plants having been knocked out by No. 3 Group in February and March. This latest attack, in which the R.A.A.F. units dropped 52 of a total 505 tons, caused very severe damage in all parts of the power, coal drying and coal-feed systems at Molbis, preventing any benzol production for at least a month. The renewed attack on Lutzkendorf, which came only four nights after the damaging attack by No. 1 Group, showed the determination of Bomber Command to subdue completely this major plant capable of feeding enemy units on the Eastern front. It was the final raid against a major production centre and No. 9 Squadron sent 18 Lancasters (6 captained by Australians) carrying 12,000-lb Tallboy "earthquake" bombs to assist the main force of 221 aircraft (21 from Waddington). Nearly 950 tons of bombs created new havoc in ovens, cooling towers and the gas purification, catalyst and distillation sections. As at all oil targets the *Luftwaffe* and ground defences made desperate attempts to disrupt the attack but with only minor successes to offset the complete devastation of the plant. Two of the five aircraft which failed to return from this raid belonged to No. 463; both were victims of flak. Flying Officer Baulderstone's[9] Lancaster was heavily hit during its run-in, but although the bomber rolled over to port, the pilot was able to level out and bomb. He then struggled to within 30 miles of Allied lines before ordering his crew to leave the aircraft which had begun to disintegrate; he himself perished in this attempt to reach friendly territory. The other crew was more fortunate; all baled out and contacted Allied ground units.

The Hamburg raid led by Wing Commander Kemp was a small but successful effort by 40 Lancasters (20 from Waddington) in conjunction with a Tallboy attack by No. 617 on adjacent U-boat pens. Jet-propelled Me-262 fighters attacked this force and both Flight Lieutenant McGregor[1] of No. 463 and Flying Officer Blair of No. 467 were engaged by jets which crashed through the heavy escort of Mustangs and Spitfires. For their last bombing operation Nos. 463 and 467 each sent 14 Lancasters in a force of 107 which set on fire a small oil storage depot at Tonsberg Vallo on 25th-26th April to ensure that enemy forces in Norway would be immobilised during imminent Allied moves to liberate that country. One aircraft of No. 463 failed to return from this raid but made a forced landing in Sweden where the crew was temporarily interned.

The Waddington squadrons were less successful on naval operations. Each sent 10 aircraft on 6th April to attack shipping in Ijmuiden Harbour but the mission was abandoned because of cloud over the target and the presence of Allied troops close to the town. Similarly, on 23rd April,

[9] F-O T. H. Baulderstone, 429910; 463 Sqn. Insurance clerk; of Linden Park, SA; b. Unley, SA, 11 Jun 1923. Killed in action 9 Apr 1945.

[1] Sqn Ldr G. O. McGregor, AFC, DFM, 142212 RAF. 106 Sqn RAF, 463 Sqn. Insurance official; of Ilford, England; b. Seven Kings, England, 26 Apr 1922.

10 crews of No. 463 and 10 of No. 467 sent to attack U-boats and depot ships at Flensburg encountered heavy cloud over the target and all returned without bombing. Two attacks were made by Nos. 463 and 467 Squadrons against railway marshalling yards in Czechoslovakia in mid-April, aimed at preventing any large-scale moves towards the Redoubt. On the 16th-17th the target was Pilsen, a junction controlling several main lines, and although this entailed a round trip of 1,300 miles, an almost classical attack resulted, the factors of weather, timing and target marking all turning in favour of the attackers. The northern end of the marshalling yards was extensively damaged, through lines leading eastward and northward were cut, waggon repair shops partially destroyed and large fires raged in the trans-shipment and warehouse sectors. No. 463 lost one aircraft which was damaged by a fighter before reaching Pilsen, but the pilot, Flying Officer Hagley,[2] jettisoned his bombs and flew back to Juvincourt where all the crew baled out successfully. The subsequent raid against Komotau (a relatively small marshalling yard on the line from Pilsen to Dresden) on 18th-19th April was anti-climactic. Crews attacked from between layers of cloud lying at 6,000 and 12,000 feet and, although many returned with enthusiastic reports of fires and explosions, others were cautious in their assessment. In fact there was extensive damage to the marshalling yards but many sticks of bombs had landed very wide of the target area.

Wing Commander A. Wharton handed over command of No. 466 to Wing Commander Hollings[3] on 3rd April, but this unit with its obsolescent Halifax Mark III aircraft was called on for only five operations during the month. Only one was at long range: on 11th April the squadron sent out 17 in a force of 129 Halifaxes against marshalling yards at Nuremberg, an intersection of both north-south and east-west traffic routes. Five aircraft were damaged by flak but all returned without difficulty from this raid, which left huge interlaced craters in the south-east of the sorting sidings and general damage throughout the marshalling yards. Fourteen R.A.A.F. Halifaxes bombed the Rhenania oil refinery at Harburg on the 4th-5th (while No. 460 was over Lutzkendorf) in an attack which caused two very heavy explosions and gutted half the tar and oil storage tanks and much of the distillation unit. Enemy fighters were sighted over the Dutch coast but were not very aggressive although Flying Officer Watson[4] of No. 466 claimed damage to an Me-410 in a short inconclusive battle, and Flying Officer Heinrich[5] of No. 102 reported that his gunners shot down in flames an unidentified type of fighter. The squadron was not so fortunate four nights later when 12 crews took off to attack the Blohm and Voss submarine yards at Hamburg: one Halifax failed to return and another crashed near the airfield. After joining in

[2] F-Lt J. A. Hagley, 401947; 463 Sqn. Customs clerk; of South Melbourne; b. London, England, 28 Mar 1913.

[3] W Cdr A. Hollings, DFC, 416575. 207 Sqn RAF, 466 Sqn; comd 466 Sqn 1945. Salesman; of Woodville, SA; b. Leeds, England, 25 Oct 1919.

[4] F-O D. J. Watson, 417914. 466 Sqn, 35 and 578 Sqns RAF. Clerk; of Plympton, SA; b. Newcastle, NSW, 22 Oct 1923. Killed in action 9 Apr 1945.

[5] F-O B. W. Heinrich, 416496; 102 Sqn RAF. Farmhand; of Bute, SA; b. Bute, 19 Jan 1920.

the mass raid against Heligoland on 18th April No. 466 ended its operational career with another daylight raid against a "naval" target on the 25th—this time against coastal gun batteries at Wangerooge.

No. 462 was the only R.A.A.F. squadron to improve its operational tally in April 1945 compared with the previous month. On 14 nights varying numbers of Halifaxes set out on "spoof" Window and bombing raids while a few Window aircraft actually flew with main forces at Kiel (9th-10th and 13th-14th), Leipzig (10th-11th), Potsdam (14th-15th) and Pilsen (16th-17th), to confuse enemy radar operators as to the size of the bomber streams. Late in the month the first of the specially modified Halifaxes designed as flying radio counter-measure units became available and special jamming patrols were flown with main forces attacking Heligoland (18th) and Wangerooge (25th) in daylight and Lubeck on the night of 23rd-24th April. This squadron was also the only R.A.A.F. unit of Bomber Command to operate during May, when on the 2nd-3rd six aircraft made a simulated full-scale bombing raid in the Flensburg area while four others completed a radar-jamming mission near Kiel. During the 139 sorties of this period two Halifaxes were lost. A third was badly hit during the Potsdam raid but its pilot, Flying Officer Anderson,[6] although himself injured, was able to make a safe forced landing at Liege in Belgium.

For the last 10 days of the war the Lancasters were employed on the peaceful tasks of ferrying back to England prisoners of war already liberated, and of dropping food and medical supplies to civil communities in Holland. No. 460 brought back 181 former prisoners of war from Melsbrock on 28th April and then on seven consecutive days from 30th April made 139 sorties to drop food packages at The Hague, Rotterdam and Leiden (north-east of The Hague), which were still cut off from Allied ground forces. Another 599 prisoners were safely ferried home by No. 460 on 10th and 11th May and meanwhile both Nos. 463 and 467 repatriated over 1,000 prisoners, each Lancaster carrying 24 men instead of its normal bomb-load. For the aircrew involved there was, in addition to the natural joy that the war was ending, a special emotional and psychological appeal in these duties. The "biscuit bombardiers" saw Dutch streets lined with people waving flags and on 5th May the words "Thank you boys" were seen in huge panel lettering in the next field to the dropping zone at Leiden. Similarly crews retained many poignant memories of their ferrying of prisoners, especially when as many as possible of their passengers would crowd into the cockpit to see the white cliffs of Dover as a symbol of their homecoming.

The unconditional surrender of Germany on 7th May 1945 brought immediate problems as to future employment of the very dispersed air and ground crew at the disposal of Air Vice-Marshal Wrigley, Air Officer Commanding R.A.A.F. Headquarters in London. At this time there were

[6] F-O H. R. Anderson, DFC, 428018; 462 Sqn. Clerk; of Deloraine, Tas; b. Ulverstone, Tas, 11 Jun 1924.

some 13,500 men in the United Kingdom, western Europe, Gibraltar, Iceland and the Azores; another 2,500 in the Middle East and M.A.A.F., and 1,000 in India and Burma. The last group was already substantially deployed on units which were engaged in the Japanese campaign, but there was no R.A.A.F. squadron in this area into which they could be concentrated. In the Mediterranean area the R.A.A.F. *Article XV*[7] units were not likely to be chosen for transfer to South-East Asia Command, while the many dispersed aircrew could only be regarded as a pool from which the R.A.A.F. in Australia, which was facing an acute manpower shortage, could draw men needed for its planned expansion to a strength of 53 squadrons. In the United Kingdom plans had existed for some time to include R.A.A.F. Lancaster squadrons in the R.A.F. "Tiger Force" which was to move to the Pacific for strategic bombing operations against the Japanese home islands; the R.A.F. was keen to retain the specialist No. 462 Squadron, at least temporarily, to test radio countermeasure equipment and techniques, while No. 466 was transferred on 7th May to Transport Command. Any continuing role for the other *Article XV* units was in doubt, although No. 464 (light-bomber) and Nos. 451 and 453 (fighter-bomber) Squadrons were under consideration for employment in the air echelon of the army of occupation which would administer the British zone of Germany.

While R.A.A.F. units proper presented no real administrative difficulty, as they could continue to train in their new or old roles until a final decision as to their future was known, the major problem was that of the dispersed aircrew. The 13 R.A.A.F. units based in the United Kingdom on 1st May 1945 held only 2,646 Australian air and ground crew members compared with 2,563 spread among some 220 operational R.A.F. squadrons in the same area. Another 1,960 Australians were instructors or pupils at O.T.U's or H.C.U's; 154 were sprinkled among 67 R.A.F. stations; 605 were at No. 11 P.D.R.C. Brighton; 662 were at Training Command A.F.U's; and 2,015 at other training units or in staff appointments with miscellaneous R.A.F. units. It had already been agreed in principle during March that R.A.A.F. aircrew would be withdrawn from R.A.F. squadrons at the end of Phase I, and on 3rd May the Aircrew Allocation Committee pressed that stocks of R.A.A.F. aircrew surplus to replacement needs for R.A.A.F. squadrons which would be used against Japan, should also be withdrawn from A.F.U's, H.C.U's or O.T.U's and returned to No. 11 P.D.R.C.

The problem of quickly unscrambling such a large proportion of the R.A.A.F. force from so many different R.A.F. units and locations was made more difficult by acute shortage of accommodation at the personnel reception centre at Brighton, which at this very moment was also trying to meet the needs of over 900 released prisoners, and by lack of priority for shipping berths. While campaigns in Burma and the Pacific to achieve a speedy defeat of Japan were in the balance, there was little hope that

[7] Nos. 3 and 10 RAAF Squadrons were units of the permanent RAAF and their further deployment or role was primarily a matter for the Australian Air Board.

Australia could demand that repatriates should have preference over essential war cargoes and men being sent to front-line units. Many R.A.F. units were also reluctant to release their R.A.A.F. specialists until suitable replacements could be posted in their place: other Australians, both aircrew and ground staff, were undergoing training courses which could hardly be interrupted quickly. Nevertheless the task was energetically met, and in a flurry of postings in May and June, approximately 800 additional Australians had been posted to the nine R.A.A.F. squadrons then officially in existence.[8] The complement at No. 11 P.D.R.C. had risen in two months from 605 to 2,024; many had been attached to Overseas Headquarters temporarily to assist with the vast administrative burden of dealing with the intricate disengagement program itself. During these two months also the concept of aircrew holding units within R.A.F. Commands had come to fruition, and on 1st July 401 surplus R.A.A.F. aircrew had been posted to No. 9 A.C.H.U. at Gamston (Nottinghamshire), 59 to No. 14 A.C.H.U. also at Gamston and 82 to No. 15 A.C.H.U. at Beccles in Suffolk. Coastal Command had not at this time begun to shed its Australian personnel as a state of readiness against evading or possibly piratical U-boats was maintained throughout May and at the beginning of June, but plans were well advanced to concentrate surplus R.A.A.F. aircrew of this command in No. 14 A.C.H.U. which was to transfer to Millom in Cumberland. June also saw the repatriation to Australia (Draft Nos. 92-95) of 605 officers, 400 warrant officers and 282 rankers from the United Kingdom.[9] At this stage there were still a few Australians serving with 160 operational R.A.F. squadrons but in small numbers except at No. 550 Squadron, which still held 78 aircrew; O.T.U. and H.C.U. holdings had been almost halved to 1,017 with the only large active trainee group (424) at No. 21 O.T.U. (Moreton-in-the-Marsh) which would feed R.A.A.F. units in Phase II, and another large group of 128 as yet not posted from the disbanded No. 27 O.T.U. at Lichfield. R.A.F. stations, A.F.U's, schools and miscellaneous units were all being progressively denuded of R.A.A.F. men, although there were still 197 at No. 4 School of Technical Training at St Athan, 64 at No. 4 Radio School at St Eval, another 188 attached to No. 53 Base at Waddington, and 178 at No. 71 Base at Lindholme.

Repatriation to Australia during July 1945 amounted only to 421 men from the United Kingdom and a meagre 18 from the Middle East but this month saw events which were to affect radically the extent and rate of the return to Australia. On 16th July the first experimental atomic bomb was successfully exploded at the proving grounds in New Mexico. From 17th July to 2nd August the major Allies conferred at Potsdam on ways of achieving a rapid defeat of Japan and this was followed dramatically by the first operational drop of an atomic bomb at Hiroshima

[8] No. 455 disbanded on 25 May; No. 456 on 15 June; No. 459 on 10 April; and Nos. 10 and 461 on 20 June. On 1 July 1945, except in the case of No. 459, some Australians remained at the respective parent stations awaiting disposal.

[9] A total of 170 RAAF personnel were also repatriated from the Middle East but largely in accordance with existing plans for tour-expired men.

on 6th August and a declaration of war by Russia against Japan two days later. General Slim's Fourteenth Army in Burma was also achieving successes far beyond expectations and no longer required logistic support on the scale envisaged. Time was running out and the tide of national politics was running strongly against any likelihood that Tiger Force R.A.F. would in fact be welcome or useful in the Pacific. Against this dynamic background of international events, the R.A.F. itself was forced to revise drastically its forward planning, and, as a corollary, the R.A.A.F. Overseas Headquarters became faced with the larger problem of almost complete repatriation of all its forces used in the war against Germany. At the same time there were obvious signs that the means of achieving repatriation would be far greater than before. By 1st September, although the Australian complement of the nine remaining R.A.A.F. squadrons held steady at 2,453, there were then only 128 R.A.A.F. aircrew dispersed on 42 R.A.F. squadrons; only 315 aircrew remained in O.T.U's and H.C.U's of which 223 were at Moreton-in-the-Marsh; a mere 139 men were still scattered among 50 R.A.F. stations and A.F.U's; 161 were still at specialist schools; and 206 at miscellaneous units. The majority of Australians were already at holding units—1,841 at No. 9 A.C.H.U. Gamston, 1,031 at No. 14 A.C.H.U. Millom, 704 at No. 15 A.C.H.U. Beccles, 308 at No. 16 A.C.H.U. Cranfield, with another 320 at No. 1 P.D.R.C. West Kirby. Even though the cease-fire in the Pacific war came only on 15th August the general shipping position eased that month and 932 R.A.A.F. men left the United Kingdom for home. Thereafter scarcity of berths was never a problem and during September embarkations totalled 2,041 in the United Kingdom, 372 in the Middle East and 595 in India. Large October drafts in the *Stirling Castle* (1,225 from the United Kingdom, 586 from the Middle East) and *Aquitania* (2,153 all from the United Kingdom) made a significant reduction in numbers at all aircrew holding units.

Meanwhile the rush of events in the Pacific had already decided the future of the remaining R.A.A.F. squadrons. Tiger Force, which was never operational, officially disbanded on 31st October but it had already shed its Dominion units. There were corresponding changes in requirements for specialist and transport squadrons to back this stillborn bombing force, and here again *Article XV* units were the first to be released. No. 460 which had continued operational training, including "Post Mortem" exercises from Binbrook, throughout May and June 1945, was informed on 20th July that it would be reduced in size to a two-flight squadron and transfer to East Kirkby in No. 5 Group as an element of Tiger Force. However, all training for Tiger Force was discontinued on 17th August and except for local flying No. 460 made only sightseeing trips to Berlin, and ferry flights to Bari to bring back men on leave to the United Kingdom, before it was withdrawn from the line on 22nd September. The official date of disbandment was notified as 10th October but the unit held its farewell parade on 4th October. This was attended and addressed by Air Vice-Marshal Wrigley. Two days earlier a formal

last flight to commemorate the effort and sacrifice of No. 460 was made when Wing Commander Swan flew to Amiens to obtain photographs of the Australian War Memorial honouring the First A.I.F. By 25th October all squadron members had been posted to Gamston for repatriation.

No. 462 spent May, June, July and August on ferrying duties, training flights over the Ruhr (with ground crews as passengers) and as a Window force in "Post Mortem" exercises. All training ceased on 7th September and men began moving immediately to Gamston, although No. 462 did not officially disband until 24th September. No. 463 had been told in May that it was not required for Tiger Force but it continued training both at Waddington and at Skellingthorpe (its new base as from 3rd July) until 14th September, but then all flying was cancelled and the unit ceased to exist 11 days later. No. 466, which with the rest of No. 4 Group joined Transport Command on 7th May, spent the rest of that month and early June disposing of surplus bombs by jettisoning them in the sea and also began specialised training for long-distance transport duties. On 20th June the unit was renamed No. 10 Squadron R.A.A.F., taking the number plate of the permanent squadron which ceased operations with Coastal Command on that day. Plans to re-equip the squadron first with Lancasters and then with York aircraft did not materialise but instead, after moving to Bassingbourn on 6th September, lectures and conversion flying on Liberators began and continued until 15th October, when the squadron was declared redundant as from 26th October. No. 467 which began training for Far East operations at Metheringham on 15th June had already disbanded on 30th September, so that within a few months of VE-Day nothing remained of the bombing units which had played the predominant part in the R.A.A.F. effort against Germany.

From May until September 1945 No. 464 remained at Melsbrock, but apart from providing escorts for aircraft carrying diplomats to and from the Potsdam conference it was engaged mainly in ceremonial formation flights over major cities and ferrying duties on the Continent. In the general rolling up of tactical units after the defeat of Japan it received orders that it was to be transferred on 25th September from No. 2 Group Second T.A.F. to Bomber Command, with a view to immediate disbandment. In a final formation fly-past over The Hague on 14th September, to commemorate the Battle of Britain, No. 464 was joined by Spitfires of No. 453, newly arrived at Fassberg in Germany. On 16th September No. 453 moved to Gatow airport in Berlin for police duties; it achieved the honour of being the first British squadron stationed in the German capital, but operations and training were hampered by lack of permission to fly outside the very restricted British sector there. After one month's detachment No. 453 moved to Wunstorf, near Hanover, where No. 451 was also then stationed. Between 27th November and 28th December No. 451 was also rostered for duty in Berlin but on returning to Wunstorf found that the future of both the R.A.A.F. fighter squadrons was again in doubt. The Australians, especially the ground crews, no longer had the impetus of war to sustain enthusiasm for foreign service in a bleak and

ruined country. Homesickness was prevalent and there was a very meagre response when volunteers were called for in November 1945 for a further year's service in the British Army of Occupation. Even though the requirement for each squadron and its attendant servicing echelon was relatively small—20 officers and approximately 100 ground staff—sufficient volunteers could not be foreseen from Australians still in the United Kingdom, nor was it considered warranted to secure replacements from Australia.[1] Accordingly it was decided that both units would disband on 21st January 1946. The last days of these two *Article XV* squadrons were unfortunately marked by the death of Squadron Leader Davidson on 6th January while he was flying to England to sit at a court martial. He had been firstly a flight commander with No. 451 and then commanding officer of No. 453.

The general pattern of repatriation of R.A.A.F. members to Australia was that recovered prisoners of war, if medically fit, should receive first preference. Then the individual Australians, disgorged by R.A.F. operational and training units as surplus to requirements and who were no longer productive in the terms of the E.A.T.S. Agreement, should return to Australia for possible further employment against Japan. As *Article XV* units disbanded, their members were also added to the general stream of repatriation. This pattern was overlaid by many conflicting considerations both of an operational and a personal nature. It was still important to give priority passages to specialists and experienced aircrew (not tour-expired) in categories that were in short supply in home-based R.A.A.F. units. It was also prudent to give, within reason, humane consideration to marital, medical, professional or other personal reasons why individuals might wish either to accelerate or defer their return to Australia. And thus it was that the disengagement and repatriation of the overseas R.A.A.F. force put a tremendous pressure on Overseas Headquarters in London. Many aircrew both on *Article XV* and R.A.F. units had, during the war, an incomplete comprehension even of the function of their own headquarters. They lived far too close to the daily demands of a squadron and the operations of their particular command to appreciate the patient, assiduous work of the administrative sections which supervised every facet of their service overseas. The test for Overseas Headquarters was how well it had planned and prepared for the time when these individuals, freed from war operations, came to realise that they were in fact members of the R.A.A.F. and not of a Commonwealth Air Force, that the war was ended, and that each had to decide his own future. Staffs of the Records, Casualty, Medical, Equipment, Education, Rehabilitation, Finance and Welfare Sections at Overseas Headquarters and at No. 11 P.D.R.C. Brighton, were inundated by an unprecedented number of inquiries concerning individual personal problems. The obvious solution was to select from among the now virtually unemployed aircrew men with civilian training of value to these overworked sections. This system of temporary attachment worked well.

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[1] Although this was done in respect of No. 77 Squadron which was to take part in the occupation of Japan.

The Casualty Section at O.H.Q. had since late 1941 adapted routine Air Ministry procedures to conform more precisely with R.A.A.F. requirements and for the remainder of the war had been engaged in the important work of prompt and accurate notification of casualties, investigation and presumption of deaths, holding committees of adjustment, disposal of kit, finalisation of deceased members' estates and recording of burials. Wherever practical it was arranged that R.A.A.F. chaplains would conduct burials in regional cemeteries, where temporary crosses were erected and photographs taken of individual graves. During 1944 no fewer than 2,077 finalisation statements were forwarded to Australia.

There was also a regular flow of correspondence between O.H.Q. and individual prisoners of war. When any missing airman was identified as a prisoner of war (either through Air Ministry channels or later by a special direct service established with the International Red Cross at Geneva) an initial letter was sent, assuring him that his relatives and next of kin had been notified, giving him general information concerning services or facilities he might wish to invoke, and encouraging him to state any personal needs. Thereafter, as far as practicable in the circumstances, the Casualty Section tried to act as his agent throughout his captivity. From time to time matters of general interest were also sent to camp leaders in all known locations, who in turn passed on the information to the Australian prisoners. Each man's clothing and personal possessions were recovered from his unit and carefully stored to await his return. Plans for the eventual recovery and rehabilitation of over 900 prisoners or internees were partly shaped by experience with 28 R.A.A.F. men repatriated before the spring of 1945 under the medical provisions of the Geneva Convention. A reception committee met each ship on arrival at a British port, and special clothing, comforts and a pay-book carefully brought up to date were made available immediately to each man. Thereafter, whether in hospital or after transferring to Brighton, wide opportunities were given to readjust to normal conditions before repatriation. Lectures, debates, visual education, special food rations and the sympathetic personal cooperation of welfare, education and rehabilitation officers, did much to restore the health, dignity and individuality of each man.

Arrangements were made with SHAEF that a R.A.A.F. representative should be appointed to the committee supervising the scheme for the general evacuation of prisoners, and in the spring of 1945 a R.A.A.F. search team went to Europe and one officer to Odessa[2] to make initial contact with Australians as they were released. By September 1944 arrangements were complete for a special P.O.W. Section at No. 11 P.D.R.C. Brighton to be staffed as far as possible with men who had flown on operations themselves.[3] This plan envisaged a progressive flow of men returning as Allied troops advancing into Germany overran the

[2] It was expected that many prisoners would be evacuated via the Eastern front.

[3] The staff of the RAAF Special Administrative Section comprised a commanding officer, administration, personnel, welfare, education (2), rehabilitation (2), equipment, medical and dental officers with supporting accounts, postal, records and photographic sections, housed in the Metropole Hotel Brighton. The AIF organised a similar special reception depot at Eastbourne for army prisoners.

various camps, but this did not happen because of the German determination at all costs to keep control of prisoners to the very end. The Special Administrative Section at Brighton did not therefore begin its formal work until 11th April 1945 when the first liberated prisoners arrived. Thereafter the intake rate was approximately 10 per day until VE-Day when it increased to an average of 35 per day, until a total of 980 were attached to this unit. Reception formalities of medical examinations, re-kitting and personal interviews normally took two days, and, in accordance with advice already given to the men by the field representatives with SHAEF, they were then offered 28 days' leave. With few exceptions this was (after using free cable facilities to advise their next of kin in Australia) the prisoners' main wish, and, armed with double ration cards, special N.A.A.F.I.[4] entitlement forms and issues from the R.A.A.F. canteen of delicacies in short supply in civilian shops, the men departed to stay with personal friends or holiday hosts chosen from the Lady Ryder or Nuffield hospitality lists.

This leave was an anodyne to permit ex-prisoners to make their own initial mental and physical readjustments. They then returned to Brighton where pay, promotion and other personal details, lying for so long in abeyance, were carefully discussed with each man. Great stress was placed on the importance of treating as individuals these men who had been herded into groups and who still retained group consciousness as a defence mechanism.[5] Although indecision, numbed surprise and sometimes truculence or unbalanced boisterousness were the inevitable reaction of some of the men returning from the unspoken horrors which had hedged them both in camps and on forced marches, patient efforts were made at this stage to interest men in a more purposeful future, either in the R.A.A.F. or in civilian life. This was not always successful despite the tact, understanding and enthusiasm with which the staff worked at both formal and informal interviews. The senior rehabilitation officer, Squadron Leader R. S. Jones, himself formerly a prisoner in Italy, an internee in Switzerland and a Maquis fighter, found that although a comprehensive scheme of non-Service employment had been evolved especially for former prisoners awaiting embarkation, only 41 wished to use it. Those who were interested, however, tended to be as enthusiastic as the majority were apathetic and 24 applied for leave without pay to undertake jobs or courses of practical instruction beyond their normal embarkation date. Education officers also reported that even men who had arranged for study courses during their confinement did not always choose to continue them while at Brighton.[6] This comparatively small

[4] Navy, Army and Air Force Institutes. This organisation, established after the war of 1914-18, had developed into a big business, with branches wherever there were substantial British forces, and producing a surplus of more than £1,000,000 a year.

[5] Somers House, the Australian Red Cross Club at Brighton, which did invaluable work was better known as "Kriegie's Corner".

[6] A total of 175 members of the RAAF began educational courses while prisoners of war in Germany, mainly under the War Office scheme. Many studied one subject, especially the German language, but matriculation and other formal examination credits were sought. These courses and examinations if applicable were organised by the British Red Cross POW Section, Balliol College, Oxford.

interest in non-Service employment was attributed to the desire of men imprisoned for varying periods up to four years for complete freedom, large pay-book credits which allowed them to gratify this desire, and knowledge that former prisoners had the first claim on shipping berths to Australia. More interest was shown in Australian plans for post-war reconstruction, and in particular the benefits and opportunities under the Commonwealth Reconstruction Training Scheme. To most men, Brighton was merely an interlude, albeit pleasant, before they could return to their families in Australia; after that they were willing to face the problem of readjustment to civilian life. In the event the rehabilitation process at Brighton was generally successful in that after individual personal problems had been successfully dealt with, men were repatriated to Australia without any undue delay which might have led to boredom through inactivity. The Special Administration Section closed down on 4th August 1945 leaving only a few medical cases and men who were remaining voluntarily in the United Kingdom to be supervised by Overseas Headquarters.

The other main work of the Casualty Section was in regard to men still posted as "missing" at the end of the war. In 1944 a comprehensive scheme for post-war search for R.A.A.F. personnel was submitted to the Air Ministry and subsequently these proposals were passed to the War Office by the Air Ministry as the basis of the latter's plan for the combined Service arrangements. Nearly 3,000 Australians were still "missing" because of lack of actual proof of death, and although many were presumed to have been lost at sea, it was considered imperative to solve as many cases as possible.[7] Volunteers were called for, and from no fewer than 300 aircrew who responded, 23 were chosen to spend two years in mobile search teams on the Continent as members of the Missing Research and Enquiry Service. The work was difficult because, although in some cases the International Red Cross or German sources had given lists of identified or unidentified bodies found in crashed aircraft or washed ashore, these were far from complete and contained many discrepancies. News had also trickled in from agents, escaped European civilians, enemy prisoners of war and the various national resistance organisations. Repatriated prisoners also helped to clarify some cases, but the main task involved a meticulous re-inspection of all known graves and interrogation of countless local military and civic authorities in Europe.

Local inhabitants in previously enemy-occupied territory and progressively even those in Germany cooperated well with investigating officers. Even in remote hamlets in France, Belgium and Holland lonely but beautifully tended graves, some with monuments, were found bearing the name and number of an airman, the date of his death and a suitable inscription; others simply bore the melancholy but sincere "Aviateur Brittanique inconnu. Mort pour la patrie." Search in heavily-bombed Germany was more difficult, but, except for zones of occupation where only limited facilities were permitted, was generally successful. To this

[7] Air Ministry records contained files of 30,000 missing aircrew including the 3,000 RAAF.

patient work of the Missing Research and Enquiry Service many Australian families, who had heard no definite news since the first fateful telegram that a husband, son or brother was "missing from an operational flight", owe the comfort derived from knowledge that he is buried with honour and that his grave is tended lovingly with care and reverence.

Whether availed of or not, the special educational and rehabilitation provisions given so much prominence in the plans for ex-prisoners of war evolved from a growing interest from late 1943 by substantial numbers of tour-expired aircrew (awaiting further training or operational employment) concerning educational courses which would be of cultural or occupational value. Hitherto there was no specific provision at Overseas Headquarters to meet such a need; both on R.A.F. and R.A.A.F. stations it was only from 3rd August 1943 that all the educational facilities and aids provided by or under the auspices of Air Ministry (including financial aid and War Office vocational correspondence courses) were made to R.A.A.F. personnel, other than prisoners of war. Educational courses provided from Australia had not proved satisfactory, chiefly because of mail delays and the rapidity with which R.A.A.F. trainees and operational aircrew changed their location. In March 1944 Squadron Leader Stanes[8] arrived to fill a newly-established post at Overseas Headquarters to organise and administer all educational facilities for R.A.A.F. men. The main problem was to find institutions which could provide correspondence courses and examination facilities that would cover a variety of subjects reflecting the range of occupations from which the E.A.T.S. men had been recruited and that would later be accepted as valid by Australian education authorities. The London University early agreed to accept R.A.A.F. students for examination in single subjects at matriculation or higher standards. Accountancy institutes, institutes of engineering and the Royal Institute of British Architects had reciprocal arrangements with their affiliates in Australia, although there were frequent complications as to the eligibility of individuals to undertake a particular course of study. The majority of correspondence tuition was arranged either through the War Office scheme or through the British Institute of Engineering Technology.[9] The latter organisation was represented in Australia and, as studentships were transferable, there was an increasing tendency for both ground and aircrews to use its courses, especially as a considerable reduction in fees was negotiated and the Australian Ministry of Post-War Reconstruction agreed to refund 75 per cent of the reduced fee to successful students. Another education officer arrived in June 1944 for duty at Brighton and a further two in October for duty with the prisoner-of-war section. Apart from formal courses, the Universities of

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[8] W Cdr J. G. Stanes, 253765. SEO 3 ITS 1941, 2 ITS 1942-43, Overseas HQ London 1944-45; CRTS Rep London 1945. Schoolteacher; of Ararat, Vic; b. Melbourne, 15 Dec 1910.

[9] The numbers of RAAF personnel availing themselves of these courses were:

War Office vocational	840
postal study	820
British Institute of Engineering Technology	730
Other correspondence courses	25
RAAF Education Service	30

Oxford and Cambridge instituted short general cultural courses for Allied servicemen on leave from their units; the British Council through its Dominions Services Educational Advisory Committee encouraged other universities to arrange similar short courses, and a total of 700 R.A.A.F. men had the opportunity of participating in a corporate life in the traditional surroundings of these famous institutions. The British Council also assisted in providing lectures for discussion groups at units; in organising tours to industrial areas and establishments, and to places of historical interest; its professional contacts division proved of great benefit to men wishing to pursue particular interests, while supplies of books, photographs and films were available covering a very wide range of subjects.

Arising from this upsurge of interest in education, on 14th October 1944 authority was received from R.A.A.F. Headquarters in Australia to implement a policy of non-Service training for ex-prisoners, evaders, tour-expired and other R.A.A.F. men in the United Kingdom not required for full-time Service duties. This non-Service training was defined as "recognised courses of training either in training institutions or on the job" pending normal repatriation to Australia. The Ministry of Post-War Reconstruction gave limited approval to incur expenses for fees and tuition in addition to normal Service pay. Shortly afterwards a specialist rehabilitation officer arrived from Australia[1] to organise and administer non-Service employment policy, and negotiations were begun with the United Kingdom Ministry of Labour and National Service and also with the Air Ministry seeking concurrence that at the end of the war the principle of non-Service employment could be extended to all R.A.A.F. members awaiting repatriation. The Ministry of Labour feared that there would be objections from trade unions, that it was undesirable for men in uniform to work in factories or offices and that similar requests, if received from the numerically much larger Canadian and United States air force and army contingents, would impose too much strain on industry. The Air Ministry at first raised objections that there might be conflict with some provisions of the E.A.T.S., and that the scheme granted advantages to R.A.A.F. over R.A.F. men. Nevertheless on 11th April 1945 the Ministry informed all its regional offices and employment exchanges that all men bearing a certificate issued by the R.A.A.F. should be assisted to find temporary employment "where they will obtain additional experience or technical skill compatible with the normal occupation they will take up on returning to their own country". Air Ministry approval did not come until 23rd May, but this fortunately was in time to deal not only with released prisoners of war (the primary object of the original policy) but also with the much larger numbers of aircrew to be unscrambled from R.A.F. units. It was too late, however, to apply to nearly 3,000 Australians repatriated through No. 11 P.D.R.C. during the six months from November 1944 to May 1945, but as, during this period, drafts were evenly spaced

[1] On 1st November 1944. He was Sqn Ldr T. O. Mullette. An establishment for a rehabilitation officer was created at RAAF OHQ late in 1943 but as Air Board Order A7/44 limited the function of rehabilitation sections to assistance of personnel about to be discharged, this vacancy remained unfilled and rehabilitation aspects fell within the province of the education officer.

and passages assured, few individuals were at Brighton long enough to gain any real benefit from the scheme had it already been authorised.

In the event about 4,000 men engaged in civilian employment for varying periods until required for repatriation. Most of these were from holding units or No. 11 P.D.R.C., but some were also granted leave from R.A.F. units on request from and under the direction of the Rehabilitation Section at Overseas Headquarters. All men were granted leave with full pay plus the normal salary or wage then current. The usual procedure at holding units was for a man to state whether he desired repatriation as soon as possible, whether he was indifferent or whether he wished to remain in the United Kingdom as long as possible. Those who wished to engage in outside employment were further subdivided into men who already had a job arranged and those who needed help from an employment exchange. The first group which included many in professional and sub-professional categories, had either made contact with suitable firms on their own initiative, or had been referred by their previous employers in Australia to colleagues in the United Kingdom. Men in this class were sent on indefinite leave subject only to recall before embarkation and to the obligation to return to the holding unit should employment unexpectedly end. The second group was sent on initial leave to permit men to find suitable employment in a place of their choice. When the member told his unit where he was employed and where he was living period extensions of leave were granted.

It was natural that there would be some abuse of this noteworthy experiment in rehabilitation, because in dealing quickly with large numbers, it was not always easy to interpret or police the original instruction that non-Service employment should be confined to "recognised courses of training either in training institutions or on the job". A few of the younger men, who had enlisted straight from school or had no previous settled trade, gravitated to London and other large cities, took any casual work that was offering and lived a free, comfortable and sometimes gay life on the aggregate of their Service and civilian pay.[2] Even for these men, however, there was a greater degree of adjustment to civilian life than there would have been had the men remained inactive in holding units. Much more benefit was gained by those whose apprenticeships had been interrupted; and by architects, engineers, skilled tradesmen, accountants and clerical workers who had opportunities to refresh their experience.

Some needs could best be met by formal courses rather than paid employment "on the job" and in these cases the Education Section took responsibility. At first both R.A.A.F. individuals and local education authorities were reluctant to enter into arrangements because of the doubts concerning repatriation. This difficulty was to an extent overcome by a sympathetic ruling that for men engaged on approved training courses the "normal date of embarkation" would be the date after which they

[2] These casual jobs varied enormously: some were in offices and factories but had no real training content; work at film studios as extras in crowd scenes was very popular. Some men accepted what were virtually labouring jobs. But despite earlier fears there was no complaint from the trade unions.

could not be replaced on a draft; as this date appeared likely to be very late in 1945 R.A.A.F. members were able to plan accordingly. Later a decision was made to defer repatriation to permit completion of a maximum of one academic year. The extra period of deferment was to be taken as leave without pay, but the Ministry of Post-War Reconstruction agreed that financial assistance under the Commonwealth Reconstruction Training Scheme should be made available to such students. Despite the pressure on accommodation expected as a result of the demobilisation of British servicemen, many universities and colleges made arrangements for a special short refresher course in the Michaelmas Term for Dominion servicemen who had completed at least one year of their studies before enlistment. The general policy of approving only courses not readily available in Australia led to a high proportion of applications for unusual or specialised courses with less generally known colleges, schools or institutions. One especially popular series of four courses each of six-weeks duration was specially arranged for R.A.A.F. and R.N.Z.A.F. men with previous experience of the wool and textile industry. London University also agreed to organise and provide lecturers for a special four-weeks course in "Modern Educational Developments". Specially selected men with considerable broadcasting experience were also admitted to B.B.C. staff training courses and given an opportunity to study modern developments and techniques.

Another branch of the Overseas Headquarters staff whose duties underwent a marked change after April 1945 was the Medical Section. During 1940 and 1941, when there were relatively few R.A.A.F. members in England, liaison work had predominated. Research and reports on aircrew selection, documentation for sick and disabled personnel, pilot fatigue, oxygen administration, night vision, orthoptic training and acceleration problems were undertaken first by a Citizen Air Force officer called up in England early in the war and then by a regular R.A.A.F. medical officer sent in December 1940 to join the R.A.A.F. liaison staff at Australia House. With the establishment of Overseas Headquarters this officer at first combined the functions of staff officer medical and unit medical officer, but within a few months a second medical officer arrived to share the increasing load of liaison, research and hospital duties. The section continued to grow in size and importance throughout the war. As far as practicable each R.A.A.F. squadron on formation was provided with a R.A.A.F. medical officer and, in addition, from early 1943 the Principal Medical Officer at O.H.Q. made regular visits to units, so that many problems associated with operational flying and aircrew welfare could be discussed on the spot. Hospital visiting duties grew markedly during 1943 and in December a senior medical officer arrived from Australia to be attached to No. 1 Central Medical Board; all R.A.A.F. men requiring medical re-assessment were thereafter referred to a board whose president was an Australian.

In 1943 one officer spent six months at the R.A.F. Rehabilitation Unit at Loughborough before returning to Australia to direct a similar

unit, and in 1944 four more specialists arrived from Australia to study aviation medicine, plastic surgery, psychiatry and medical rehabilitation. After the cessation of hostilities the burden of operational and liaison medical duties naturally declined, but was replaced by the onerous task of collecting, checking and copying very large numbers of medical documents for dispatch to Australia. Very thorough medical examinations were arranged for all former prisoners, and appropriate embarkation checks made in respect of all men returning to Australia. In the event a very large percentage of medical documents reached Australia ahead of the drafts so that no delays should arise at personnel depots.

Much of the patient and valuable work done by the accounting, equipment and technical staffs at O.H.Q. went relatively unnoticed to the average airmen because of the largely impersonal nature of these essential duties, but everyone during the last year of the war and while awaiting repatriation paid special praise to the Welfare Section. Before March 1943 when there were approximately 6,300 R.A.A.F. men based in the United Kingdom Australian welfare activities consisted chiefly of distribution of foodstuffs, toilet items, wool and sheepskin clothing and recreational gear by the Australian Comforts Fund Commissioners from a central warehouse at Amesbury. R.A.F. units holding Australians were asked to supply nominal rolls to the commissioner who then sent bulk supplies monthly. Unfortunately this scheme failed because it made no provision for the very rapid and widespread movement of aircrew members both during training and operations. The Comforts Fund never failed to issue sufficient goods to ensure 100 per cent distribution, but much of them accumulated in storage, and perishables were distributed among other nationals at stations and satellite airfields from which R.A.A.F. men had moved. Although the establishment of O.H.Q. was amended in June 1942 to contain a single welfare officer, Flight Lieutenant Cochrane[3] arrived from Australia nine months later to find much dissatisfaction especially among men who had just spent a hard winter on poorly-equipped training units. Some of these alleged that they had received no A.C.F. issues for months. He was able later to improve the position by persuading the A.C.F. Commissioners to agree to the striking of a ration card for each man, giving him the right to draw to an agreed monthly scale, and retrospectively if necessary whenever he reached a unit holding stocks of Comforts Fund goods.

Cochrane quickly realised from his first unfriendly contacts that unorthodox ideas and methods were required to meet the peculiar problems of dispersed airmen. He might well have despaired, for he had no assistant, no transport and a very modest imprest account of £200, in comparison with the Royal Canadian Air Force welfare authority which aimed at providing one welfare officer or auxiliary for every 200 to 250 men in the field and which controlled 96 vehicles in 1945. Unconventional,

[3] F-Lt P. N. Cochrane, 282425; Welfare Officer OHQ London. Technical teacher and playwright; of Adelaide; b. 29 Jan 1907.

persuasive and persistent, Cochrane was imbued with even greater determination to restore or enhance a high standard of morale, not only among those under the nervous strain of operations but also those meeting the frustrations and discomforts of isolated training units. From the outset he received warm support from Air Vice-Marshal Wrigley and fine cooperation from all sections of O.H.Q. in the ingenious progressive schemes which made welfare services available to all in the European theatre. His initial three problems were to establish contact with and confidence among the widely scattered men he wished to serve; to raise funds to finance both a vast sporting and recreational program and the purchase of welfare stocks; and to secure assistance in supervising and operating his major schemes. The battle of establishments was soon lost and at the maximum period of R.A.A.F. activity his official staff amounted only to two junior officers and two N.C.O's. His solution was the attachment of temporarily grounded aircrew as supernumerary welfare assistants, and in fact in 1945 no fewer than 125 men were so employed. The disadvantage that these men had no welfare training was mitigated by their ability to speak the same language as the aircrew they were serving and their consequent sympathy and understanding. Finance did not prove to be such a grave problem as anticipated, partly because, once the vast sporting scheme fully matured, revenue from gate receipts more than equalled expenditure, and partly because the Welfare Section negotiated for and received permission to engage in trading activities in duty-free goods. Only £616 had been spent from imprest funds before welfare services became wholly self-supporting and ultimately in 1946 the Overseas Headquarters Welfare Section was able to give the spectacular sum of £81,202 to the trustees of the Australian Welfare Fund.[4]

The solution of the problem of establishing contact with all R.A.A.F. members at first entailed continuous and arduous travel by Cochrane himself to hundreds of different airfields and satellites. In an attempt to visit each site at least once every two months, approval was obtained for use of a light aircraft and a tour-expired pilot was appointed to the Welfare Section. As welfare schemes increased in scope it was found essential to decentralise, and eleven zone welfare officers were appointed, each controlling one major R.A.F. station or group headquarters together with all other units in the vicinity in which R.A.A.F. men were serving. In 1945 when the unscrambling process began zone welfare officers were moved to the four main aircrew holding units at Gamston, Millom, Beccles and Cranfield. Zone welfare officers were provided with the same equipment and facilities obtainable at O.H.Q. together with an imprest account to meet unforeseen needs.

Coincident with the attempt to raise general morale by personal contacts, Cochrane busied himself with organising social services to cope with the elimination of personal, domestic and financial worries of airmen and with examining cases of discontent arising from Service conditions.

[4] A temporary interest-free loan of £1,500 had been negotiated from the Australian War Contributions Council to launch trading activities, but this was quickly repaid in full.

Existing hospitality schemes were widely advertised, people were encouraged to offer facilities to Australians, and assistance was given to the Comforts Fund Commissioners in establishing and staffing residential hostels in London, Edinburgh, Newquay and Windermere. Sports gear and uniforms had already been distributed to R.A.A.F. squadrons by the A.C.F. but this service had not been extended to the majority of men serving on R.A.F. units nor had incidental sporting expenses been paid. A more dynamic approach was adopted by the Welfare Section to include all R.A.A.F. men and this entailed large expenditure not only on provision of equipment but in transport, ground fees, umpires' fees, publicity and accommodation expenses. Ultimately international and inter-Service fixtures were conducted in five major sports with teams from ten countries. Where transport was available inter-unit matches were arranged between dispersed R.A.A.F. stations or squadrons in addition to local matches. When the Torquay hostel became available surf racing and life-saving displays were held. Individual sports, such as badminton, squash and golf were catered for by provision, within zone depots, of stocks of equipment and clothing, while arrangements were negotiated with civilian sporting clubs to provide special facilities for R.A.A.F. players.

Even more successful was the Cigarette Fund which ensured that each member of the R.A.A.F. received a personal monthly issue of 600 American cigarettes (or the equivalent in tobacco or cigars) despite the great tobacco scarcity in the United Kingdom. The total saving to R.A.A.F. men amounted to £1,250,000, and from a small marginal profit other welfare projects were adequately financed. Other personal items such as pipes and fountain pens, which were often difficult to buy in country areas during wartime, were also made available through welfare channels. Australian cinema news-reels (*News from Home*) were distributed to all R.A.F. stations at which more than 30 Australians were serving.

Two major trading ventures after the war had ended also deserve mention. To replace watches lost by prisoners of war and operational aircrew through enemy action, or rendered unserviceable by cold, magnetism or other conditions, some 8,606 high-grade Swiss watches were imported with Treasury approval and sold to aircrew at a fraction of the retail prices. Again, although during the war lack of shipping space and the difficulty of dispersal had prevented the operation of a R.A.A.F. canteen service, surplus foodstuffs became available when the P.O.W. reception centres closed, and these were disposed of through temporary canteens set up at the main R.A.A.F. holding units and at squadrons still in existence. Generous monthly allocations of meats, fruit, sweets, sugar, butter, soap and other goods heavily rationed at that time permitted many Australians during their last three months in England to repay hospitality they had themselves received by restocking the larders of their hosts.

The Welfare Section remained at Overseas Headquarters after the large repatriation drafts had sailed to deal with the needs of men still in hospital and the human problems which are left in the wake of any overseas force.

By May 1946 its strength had fallen to the original level of one professional officer, and by August Cochrane was himself repatriated.

Questions inevitably remain to which no precise answers can be given. What was the effective real contribution of air power in attaining final victory in Europe? How appropriate in extent and form was R.A.A.F. participation in Allied air forces in relation to Australia's own war plans?

This present volume covers a period from late 1943 until mid-1945. Air supremacy in Europe and the Mediterranean had already been won in long bitter fighting campaigns and as the result of superior planning, technical and material development, and personnel training factors which favoured the Allied air forces compared with the *Luftwaffe*. Despite temporary and local successes by the German day and night-fighter forces during the last two years of the war there was never any real doubt that this air supremacy would be maintained. The vital question was therefore how well and in what degree aggressive air power either alone or in conjunction with ground or naval forces could achieve a speedy defeat of Germany, the accepted strategic aim as a prelude to victory in the Pacific. From an Australian viewpoint this was a period during which the original conception of a balanced and distinctive R.A.A.F. overseas force had virtually been abandoned because of military and manpower demands in the Pacific directly affecting Australia's own security. Commitments to provide aircrew for the European struggle were fully met and in fact Australia's part in the E.A.T.S. had to be diminished and finally terminated before the end of the war not because of inability to dispatch aircrew but because supply exceeded needs in most categories. But the Australian contribution was essentially one of aircrew only. In May 1945, of approximately 15,500 R.A.A.F. men engaged against Germany, some 12,300 were basically trained aircrew in contrast to the Pacific area where, of a total of 138,000 R.A.A.F. personnel, only 14,500 were basically trained aircrew. Again, although Nos. 3 and 10 Squadrons were initially and throughout the war maintained and financed entirely from Australian resources, any assessment of the real contribution of the R.A.A.F. would be false without consideration of the tremendous backing in aircraft, equipment, squadron and non-squadron ground backing, organisation, training, technical and operational services for titular (*Article XV*) R.A.A.F. units and dispersed aircrew which had to be provided by the R.A.F. before Australian aircrew could effectively take their part in the air war.

By any standards the achievements of air power in every land, sea and air campaign during this period were remarkable, although sober judgment after the event may question the scale, frequency and purpose of much that was attempted and brilliantly done. It was axiomatic that the air battle must first be won, but this often led to large over-insurance in terms of air support by naval and ground commanders, which to some extent dictated the growth, complement and independent activity of air campaigns. Even within the Allied air forces, political considerations,

doctrinaire preconceptions, and faulty Intelligence appreciations caused dissipation of effort because of the problem (never satisfactorily solved) of selecting truly primary targets. Air power was so flexible that it was constantly in demand for desirable rather than vital tasks. In these years of plenty there was at times a lack of concentration and a suggestion that effort was being spent for the record rather than to achieve true military objectives. Nevertheless, even when direct results were lacking, oblique benefits were often gained from the phenomenal and pervasive influence of Allied air power.

At sea, although unable to prevent the grievous Allied shipping losses of the first three years and a half of war, and towards the end ineffective against revolutionary new types of German U-boats, Coastal Command, in sinking 198 and sharing in sinking many more enemy submarines, did clear the way for trans-Atlantic supply routes on which depended the success of the Allied invasion of Europe. Aircraft from R.A.A.F. units sank 10 and individual Australians sank 9 while 7 more U-boats were shared with other air or naval units and 30 more damaged in varying degree. Bomber Command by direct attack or through its mining campaign destroyed many other U-boats.

Tactical air forces both in France and Germany and in the Italian campaign worked tirelessly to protect and blast a way ahead of the ground troops. They provided ceaseless reconnaissance services while denying similar facilities to the enemy, thus giving the Allies a great advantage in deployment and operation of troops. The morale factor of this aerial support cannot be dismissed, but at times there were indications that Allied ground offensives depended too much on air support. Despite continuous and lavish praise from army commanders it is difficult to evaluate the precise importance of tactical air support on the scale actually supplied both in Italy and northern Europe. The vast pattern of unremitting air support in defence and offence together with the less spectacular work of Fighter Command maintained general air superiority, but the direct and indirect contribution of both tactical and fighter forces must be weighed against the cost in effort of the lavish air support involved. It was a far cry from the early campaigns when British forces had to fight with meagre air support; it was now the Germans who had little help from the *Luftwaffe* but who nevertheless fought doggedly and with surprising resilience against the fiercest type of air attack.

Major interest both for the R.A.F. and the R.A.A.F. lay during the last two years with Bomber Command's part in the Combined Strategic Bombing Offensive. The aim set at Casablanca—"the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity to resist is fatally weakened" remained the prime objective of all planning authorities, although it was variously interpreted in practice. By 1944 Bomber Command had achieved really effective striking power with an average potential thereafter of approximately 15,000 sorties to drop 45,000 tons of bombs per month. Into this

command gravitated the majority of Australian aircrew both to feed the five R.A.A.F. bomber units and pathfinder and R.A.F. main-force squadrons. The Australian squadrons alone dropped 65,000 tons of bombs and incendiaries during 692 raids against 241 targets (6 per cent of the total dropped by R.A.F. Bomber Command during the entire war) and to this must be added the effort of some 6,000 men serving with R.A.F. units. Nearly three-quarters of this bomb-fall was in 1944-45 at the time when U.S.A.A.F. bombing figures were rapidly mounting until they equalled Bomber Command's effort in the penultimate month of the war. Australian contribution is thus bound inextricably to the general effectiveness of Bomber Command operations.

During the first nine months of 1944 only one-third of Bomber Command's effort was directed against targets in Germany, largely because of the demands of land campaigns and other operations. The final success of both the oil and transportation campaigns have led military theorists to speculate in many ways. Some contend that had Bomber Command been built up more rapidly during 1943 (at the expense of army expansion) it could earlier have launched such a devastating attack against Germany that the OVERLORD landings would not have been necessary. This theory ignores the main arch of Allied strategy of which the Normandy invasion was the keystone. Others claim that had the oil campaign begun six months earlier, Germany must have collapsed in 1944, but this could have been done only at the cost of failing to neutralise enemy defences and communications in France, thus jeopardising the success of OVERLORD on which, in fact, much of the later bombing accuracy and ability of bombers to penetrate deeply into Germany depended. Air Chief Marshal Harris and his protagonists remained convinced that area bombing of German cities would have sufficed, but post-war surveys have tended to show that German major cities did not in fact contain a critical percentage of enemy basic munitions capacity.

Little that Bomber Command did in 1944-45 was without military effect, in that all destruction had some effect on enemy freedom of action, and German domestic and military planning was forced progressively to wasteful expedients merely to cope with the incessant hail of bombs. But viewed academically there was undoubted waste of effort in both the direct and indirect successes of Bomber Command. Attack against specific target systems such as the aircraft or tank industry failed in its main purpose because it ignored the relatively large reserves of machine-tools and manpower which characterised the German war potential. German determination to avoid "unconditional surrender" was also proof against the frightful devastation of area attacks, because once again production capacity was impaired rather than demolished. Only the attacks developed during the last year of war against the synthetic oil industry and the extended homogeneous target system of German communications were directly effective in depriving the enemy of the capacity to produce armaments or to deliver them in sufficient quantities to significant battlefields. It is possible that even these two target systems were over-bombed during

the last few months of the war; the recurrent attacks on synthetic oil plants may have been unnecessary had the general decline of German transport potential been fully realised, while the attack on communication targets might well have been done on a more selective basis without any real diminution in the collapse of the whole system.

Hindsight may thus suggest that the air war over Europe might have been waged differently if presented as an academic military planning exercise in a vacuum. Given the ever-present factors of British, American and Russian divergent post-war aims, a plethora of planning and operational committees, competing inter-Service and intra-Service interests and the prevalent desire to over-insure in times of military plenty, it is difficult to envisage the deployment of air power in a fashion radically different from that which occurred. The theoretical waste of effort was swallowed up in the manifest triumphs. As agent for the navy and army and in its own right the R.A.F. showed remarkable ability and tenacity to undertake any task given it. The abject failures against oil, the German fleet and enemy communications during the winter of 1939-40, and the desperate situations of Dunkirk and the Battle of Britain stand in sharp relief compared with the last nine months of the war. In the process of transformation of fortunes and ability, many Australians together with ten times as many other British airmen trained and strove and suffered with a sense of complete belief in and satisfaction with not only the aims but the means of their endeavours. Despite their own domestic worries concerning active threats to their homeland, they wrote an imperishable saga of effort and heroism in the skies over Europe. Opportunity for distinction was by no means lacking although many died bravely without ever coming to notice. Nearly two-thirds of all citizen aircrew recruited in Australia served at some time in Europe or the Mediterranean and nearly a quarter of those actually engaged on operations lost their lives there. In all over 6,500 Australian airmen and officers lost their lives in (or in transit to and from) the European and Middle East theatres, a figure of approximately 20 per cent of all Australian war deaths in all Services and all campaigns of the Second World War.

CHAPTER 19

EVADERS AND PRISONERS

TO aircrew flying from English or Middle East bases the possibility of falling into enemy hands was a continual danger. After 1940, with air operations conducted principally over areas held by Germany and Italy, every flight contained the seed of disaster, whether from enemy gun or fighter defences, adverse meteorological conditions, human error in navigation or airmanship, mechanical failure, or petrol shortage. Frequently, in dire straits, a captain of aircraft was forced to make the hard choice of ordering his crew to parachute into enemy territory or of attempting to struggle back to base with the last and vital part of the journey necessarily over the unrelenting sea. It is a measure of the resolution of British airmen that where any slim possibility existed the harder choice was taken, even though very frequently it ended in failure. Pilot Officer R. H. Middleton, Flight Sergeant A. McK. McDonald, Flying Officer A. W. R. Triggs and many others brought their crews safely back to fight again by renouncing immediate safety at the cost of freedom, but many Australians, in common with comrades of other Allied nations, perished in attempting the same achievement.

Even though forced to abandon their aircraft over hostile territory, airmen were still not without hope if they reached the ground uninjured. The vast majority of R.A.A.F. men serving in England between 1941 and 1945 operated with Bomber Command on night-bombing sorties, and when an aircraft was set afire, or exploded, or became uncontrollable a varying degree of opportunity was afforded for crew members to escape from their doomed aircraft. Normally the pilot gave the order to abandon aircraft, himself leaving last, but frequently, particularly when the intercommunication system was damaged, it was a matter for individual judgment, and indeed there were cases of premature departure as well as undue delay in parachuting from a badly-hit aircraft. Except when direct shell-hits caused heavy casualties in mid-air, or damaged the parachutes, the majority of men who escaped from aircraft which were still on a relatively even keel reached the ground safely, despite occasional small-arms fire in defended areas. Often, however, a badly-crippled bomber would plummet out of control permitting few if any to bale out. Circumstances, even during a single night's operations, varied from the orderly departure of all members to extreme cases when all perished, or a sole survivor woke up in a German farm-yard after the explosion which totally destroyed his aircraft had apparently not only thrown him clear but also operated his parachute control.

Those who reached the ground alive were inevitably fairly widely scattered and schemes for combined evasion were impracticable, even if they had been wise. Unless the descent was made in open or inaccessible country, the majority of parachuting airmen were quickly met and arrested



(*R.A.A.F.*)

Sqn Ldr B. Eaton (foreground) welcomes back F-Sgt A. H. Collier (in civilian attire) on his return to No. 3 Squadron after being forced down in enemy territory near Manfredonia, Italy, on 17th September 1943. Collier evaded German forces for nine days before reaching Allied lines. Others in the group are, *left to right*: F-O's B. Birchfield, N. G. McKernan and R. C. Dent; P-O E. Hankey; F-O C. F. C. Forsstrom. Soon afterwards Hankey also was shot down and rejoined his unit on 19th October after similarly evading the enemy.



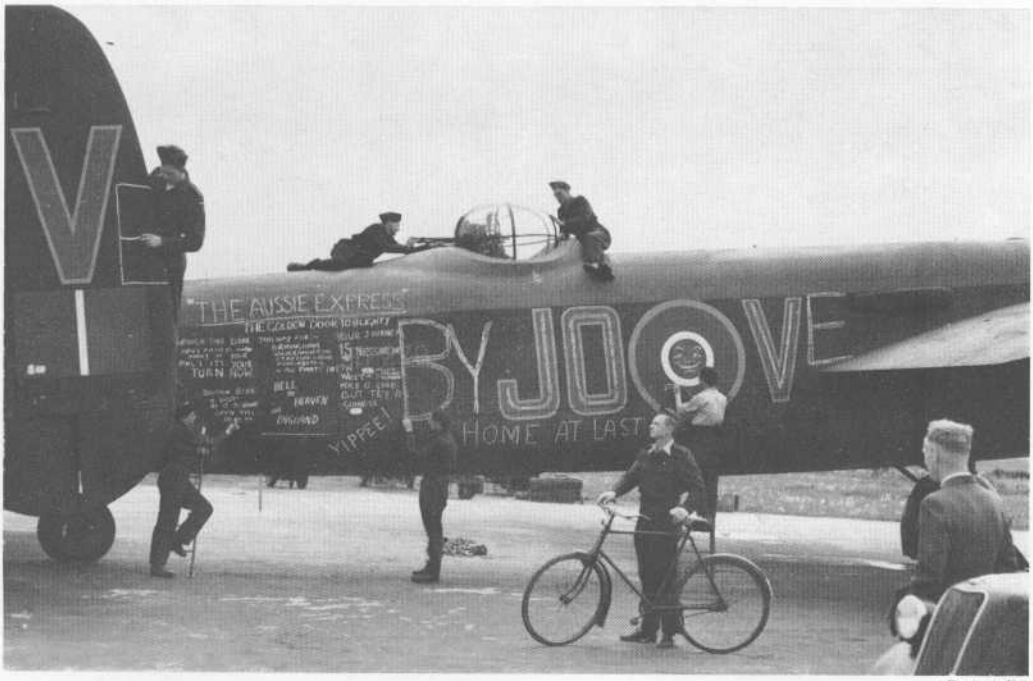
(*R.A.A.F.*)

Prisoners of war at Oflag VA Weinsberg presenting *Grouse in June*. Amateur theatricals played a large part in combating the boredom of prisoner-of-war life.



(*R.A.A.F.*)

Prisoners of war inside a typical hut at Stalag 357, Fallingbostel, Germany, in April 1945, after the area had been overrun by units of the Second British Army.



(*R.A.A.F.*)

Before taking off for Juvincourt on 6th May 1945 to pick up Allied and Australian prisoners of war, ground staff of No. 463 Squadron at Waddington suitably decorate the Lancaster "V" for Victor.

by enemy troops, auxiliaries or policemen, but frequently one or more individuals had the opportunity to elude the searchers and embark on an attempt to escape. During the first four years of the war these attempts normally ended in final capture when the airman was physically and mentally exhausted and had failed to secure local help, but, although the odds were extremely heavy, a proportion of evaders managed to reach England again.

The chances of success rose immeasurably with the emergence in Holland, Belgium and France of escape organisations in which patriotism, politics, and mercenary ends all had their part. These organisations had confidential reporters in most areas of German-occupied territory and frequently made contact with and gave shelter to evaders before they could be apprehended. Gradually a number of safe routes across national boundaries and military security lines were built up so that an airman could be passed from one hiding place to another until he reached neutral territory. There were times when the German Gestapo police agents infiltrated into these organisations, but link by link they were replaced and the "underground railway" never entirely ceased to operate. During 1944, with the universal acceptance that the Allied attempt to liberate Europe would be launched that year, more and more people, especially in France, were willing to risk death by harbouring airmen in their homes. By this time the men usually remained hidden or employed in areas lightly occupied by the enemy until they were able to rejoin the invading ground forces. During 1944 relatively few attempted the additional hazards of trying to cross heavily-guarded frontiers to seek a speedier liberty.

Australians were by no means especially fitted for the delicate and often dangerous task of evasion, for few had language qualifications or any close conception of the day-by-day habits of Europeans. Nevertheless many Australian airmen, because of their generally high degree of acuteness and careful mental preparation during their training and squadron life, were not unprepared when any opportunity presented itself to avoid capture. Australians, as did most airmen, carried compasses, emergency food, miniature tools, and even maps and appropriate currency, hidden in their flying-clothing. All had been instructed concerning their rights under International Law and their duties as military personnel. Some had evolved ready-made schemes for altering or camouflaging their uniforms so that they would pass as civilian garb and yet retain, in an emergency, undoubted proof of their military status so as to protect the wearer from any danger of being shot as a spy. Suitable phrase books for simple needs were studied, but many Australians preferred not to attempt conversation and to meet dangerous encounters by simulating idiocy, shell-shock or muteness. One very determined and hitherto successful attempt at evasion was ended when a R.A.A.F. pilot attempted in Holland to buy a rail ticket to Hertogenbosch; place names generally caused much difficulty to Australians, their pronunciation falling strangely on continental ears. Another R.A.A.F. airman put himself happily into the hands of a man who said "*Ja*" when asked if he were "Dutch?", only

to be led straight to the police station by the German who had thought he was saying "*Deutsche*?" and wished to surrender. Often the Australians best endowed naturally and best trained for successful evasion had no chance, falling immediately into the hands of enemy detachments, but despite this more than 150 R.A.A.F. men, mostly in ones but occasionally in groups, evaded capture in northern Europe and either reached neutral countries or regained Allied lines during the campaign of 1944-45. In view of the difficulties involved, this ratio of one successful evasion to every seven R.A.A.F. survivors who passed into prisoner-of-war camps reflects the strong purpose of the individuals.

All the early R.A.A.F. escapes were made through Spain to Gibraltar, for those evaders attempting to reach Switzerland were practically all rounded up by efficient German police or frontier guards. The journey to Spain which, from Holland, involved crossing up to five policed frontiers and a trip of more than 650 miles, culminating in exhausting mountaineering in the Pyrenees, was a tremendous undertaking for a single traveller, but the route lay mostly among rebellious or apathetic civilians and national authorities who would occasionally turn a blind eye even if they would give no positive help. Thus Sergeant A. C. Roberts of No. 452 Squadron, one of the first E.A.T.S. volunteers, when shot down near St Omer on 11th July 1941, was able to travel by bicycle and train southwards, and, although interned by the French at St Hippolyte after slipping across the line of demarcation into unoccupied France on 29th July, found it relatively simple to escape three weeks later, join a small party waiting to cross the Pyrenees, and thus reach Gibraltar. Roberts returned to Britain by sea early in October 1941. By this time a second Australian, Sergeant Christensen[1] of No. 101 Squadron R.A.F., shot down on 11th September while returning from Turin, was moving steadily southwards through France towards Marseilles, the headquarters of Spanish political exiles and smugglers who were always willing to provide guides for the Pyrenees crossing. Soon afterwards a third Australian began the longer and necessarily slower journey from Belgium, while two others, forced to land in Portugal through engine failure, avoided internment by stressing the non-military nature of their flight, and they too reached England through Gibraltar.

Two similar incidents in Portugal preceded the next evasion proper made in 1942 by a trainee gunner after the 1,000-bomber raid on Cologne. This airman landed in Belgium with an injured knee but remained at liberty for nine days until he was able to contact an escape organisation in Brussels which arranged his subsequent journey to Spain. Two months later Australians from two crews shot down while returning from Dusseldorf were quickly contacted by the same organisation and were safely back in England within five weeks. Four other R.A.A.F. men reached Spain in a similar fashion that autumn, but of greater significance were two independent journeys made through France later in the year.

[1] F-Lt J. R. W. Christensen, AFC, 402224. 101 and 535 Sqns RAF. Clerk; of Manly, NSW; b. Auburn, NSW, 16 Feb 1920.

Pilot Officer Galt[2] of No. 460 Squadron, who crashed near Amiens on 22nd November 1942, secured local help and proceeded boldly by train to Paris and again by train to Bordeaux without arousing suspicion. There he met two young Frenchmen who wished to escape to England, and with forged identity cards the three went by train to Bidarray, and by 12th December had crossed the Pyrenees with the help of a Basque exile. Boldness and good fortune made Galt's journey of three weeks incredibly fast, the engineer and air bomber of his crew reaching Spain through an organised escape channel only on 10th February 1943.

Greater difficulties confronted Sergeant Coates[3] of No. 115 Squadron R.A.F. who baled out injured near Laon the same night as Galt. Moving at first only by night, Coates became bolder as the general friendliness of the farmers (once they were convinced he was not a German agent) ensured him food and sometimes shelter along his route. Early in December 1942 he had reached Nogent, where a pro-British farmer gave him a ramshackle bicycle, which was repaired by a friendly mechanic, and allowed him to make greater speed southwards. A month later he crossed the line of demarcation and, though stopped by French and German policemen, successfully pretended to be a Pole. Deep snow soon made travelling very difficult, so Coates sold the bicycle to a friendly farmer, who bought for him a train ticket to Carcassonne. Coates then began walking among the frontier villages until he found a guide willing to accompany him across the Pyrenees, which at that time of the year entailed three days travelling. Finally, on 15th January Coates was safely in Spain, and soon found British authorities who arranged his movement home.

Rigid enemy security measures and the fact that bombing raids were being made deeper and deeper into Germany proper resulted, during 1943, in the capture of practically all airmen shot down over Europe, and it was not until September 1943 that Australian attempts at evasion were again successful. There had been a small trickle of men repatriated after crashing in Spain or Portugal, and on 3rd September survivors of a R.A.A.F. Lancaster of No. 460 Squadron were rescued after a raid on Berlin by a Swedish ship in the Kattegat and reached safety through Stockholm. Another seven Australians evaded capture in northern Europe that month, three from one Wellington crew of No. 27 Operational Training Unit, after having been shot down on a leaflet raid near Paris. All landed separately and the rear gunner and bomb aimer, both of whom were wounded, found shelter and eventually got into touch with an escape group. The pilot, Flight Sergeant Dowling,[4] had to remain in the aircraft as one parachute had fallen through the escape hatch, but, after a successful crash-landing near Amiens, he began immediately to walk southwards. He later reported that he had had little difficulty in

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[2] F-O D. T. Galt, DFC, 400976. 460 and 461 Sqns. Textile foreman; of East Malvern, Vic; b. Brunswick, Vic, 10 Nov 1914. Killed in action 13 Aug 1943.

[3] F-O E. A. Coates, 403798; 115 Sqn RAF. Bank clerk; of Glen Innes, NSW; b. Guyra, NSW, 13 Jun 1911.

[4] F-O G. L. Dowling, DFC, 412500. 27 OTU, 76 and 187 Sqns RAF. Machine operator; of Lithgow, NSW; b. Lithgow, 14 May 1921.

obtaining food and directions, but that he considered the peasants were nervous of reprisals and "glad to see me go". In Paris, Dowling found that everyone he approached was friendly but unwilling to risk open help, so he took a train to Bordeaux and thence to Toulouse where, after a few days, he found a suitable frontier guide. Although he was imprisoned for a fortnight in Spain, he was back in England early in November. Evaders were always a political embarrassment to the neutral countries, and Spain was also very sensitive concerning the activities of smugglers and political emigres in the Pyrenees—the main source of guides for evaders.

Two weeks earlier another notable independent evasion had begun in the same area when Flying Officer MacKenzie[5] of No. 168 Squadron R.A.F. crashed near Amiens during a tactical daylight reconnaissance. MacKenzie also reported that the country people were too afraid to harbour him, so, partially disguised, he began walking southwards by quiet roads until, on 16th September, he could go no farther because of badly swollen ankles. However, he managed to obtain a decrepit cycle and now boldly took to the main roads, skirting large towns and passing through others at busy periods. After a few days this bicycle broke down but MacKenzie exchanged it for another—"convinced that in France a bicycle is better than a passport"—and continued unmolested on main roads through Saumur and Bordeaux to Bayonne. Finding the Pyrenees shrouded in mist, MacKenzie abandoned the bicycle and walked due south into the mountains, reaching Spain next day after only casual directions from a hill shepherd. Travelling in Spain, however, was far more difficult, and MacKenzie was apprehended and kept under surveillance for another month before he was allowed to proceed to Gibraltar. Meanwhile, Flying Officer Kellow[6] of No. 617 Squadron R.A.F. was engaged in the first successful R.A.A.F. evasion from Holland where he landed on 16th September 1943 after an attack on the Dortmund-Ems canal. After a week of cautious movement in Holland, Kellow was aided across the Belgian border by smugglers and passed into the hands of an escape organisation. Secret agents also safely delivered one Australian airman to Spain and another to Switzerland in the same month.

These successes were not maintained, however, and during the next nine months only a further nine R.A.A.F. evaders reached safety, seven of them through Gibraltar, one of them flown directly back from France by a Special Operations Executive aircraft, and one, tiring of enforced hiding in France, reaching Switzerland under his own arrangements. Two factors during the spring of 1944 contributed largely to changes in the general pattern of evasion. Firstly, German secret police agents entrenched in existing escape organisations began to employ unsuspecting Belgians and Frenchmen to trap the evaders and some of the escape organisations themselves were turned into police nets. In eight cases in Belgium, seven

[5] F-Lt R. M. MacKenzie, MBE, DFC, 413242; 168 Sqn RAF. Compositor; of Melbourne; b. Melbourne, 19 Sep 1920.

[6] F-Lt R. G. T. Kellow, DFM, 411453. 50 and 617 Sqns RAF. Shop assistant; of Merewether, NSW; b. Newcastle, NSW, 13 Dec 1916.

in France and one in Holland, Australians made contact with organisations, but, after varying periods of shelter, during which indirect interrogation was attempted, they were driven away ostensibly to freedom but actually to a distant Gestapo centre. Sometimes the arrest was delayed until a dozen or more evaders were collected into one party. As a corollary to this enemy device, several Australians were also captured during the last stage of their journey across the Pyrenees, the police apparently having foreknowledge of the movement of a large party. At the same time, when escape routes were thus compromised, the French Forces of the Interior and the Belgian White Army, reinforced by agents, arms and equipment from England, were rapidly gaining strength and could command the active support of many people in German-occupied territory who had hitherto been chary of sheltering evaders. With the expectation of large-scale military campaigns in Europe, by mid-summer the Maquisards increased their virtual hold on mountainous and wooded sections of France, while even in areas adjacent to large German military forces resistance cells and resources grew rapidly so that it was far easier than formerly to hide Allied evaders. Thus some 70 Australians shot down in France after January 1944 were hidden, mostly in the areas in which they descended, until they were able to join the advancing Allied armies. The same circumstances applied to Belgium, Holland, and to a very minor degree Germany, as the tide of war swept eastward.

The experience of individuals naturally varied widely, some men rapidly filtering back to safety, while others hiding in eastern districts had to wait months before they could declare themselves, and either posed as refugee workers or took an active part in resistance operations. A few crossed into Switzerland but came out again during the summer to aid the French Maquis. Some had strange companions in hiding, meeting Russian escapers and even German deserters, while a few were arrested but soon liberated from civilian gaols or hospitals during the swift Allied advance. The majority of those in hiding in France and Belgium were freed during August or early September 1944, but in northern Holland some were still hiding until the general capitulation of Germany in May 1945; indeed one R.A.A.F. officer was then asked by Dutch Resistance leaders to embellish his uniform with added badges of rank and demand the surrender of the local German garrison.

Although there were relatively large numbers of airmen hiding in north-west Europe during 1944-45, and although all in distress could rely on the sympathetic cooperation of local people, there was an added danger that the assumption of civilian identities might subject both them and their helpers to increasingly bitter reprisals by the enemy's police. One Australian and his companions hiding in Holland were the victims of a savage Gestapo massacre, although their identity was plain, but even the inordinate risks of evasion were gladly taken and a steady stream of evaders continued even during the last battles on German soil when individuals managed to find their way back through the enemy lines. A number of escapes were also made from Denmark to Sweden during

the last months of the war, and a few more Australians found safety in Norway; one man shot down in Poland managed to reach safety with the Russian Army.

The pattern of evasion during the Mediterranean campaigns was generally a much simpler one because land campaigns were continuous and the nature of the battle hinterland differed greatly from that in northern Europe. Throughout the seesaw struggle in Libya and Egypt during the first three years, airmen operated either against the enemy armed forces or against his distant supply ports. For those shot down over the sea, or in attacking Italy, Greece or Crete, there was little hope of evasion and no local patriotic organisation in those years to give shelter. On the African mainland, however, although again most actions took place over enemy-held territory, the wide wastes of the desert gave frequent opportunity for evasion. Many men parachuted or crash-landed among enemy troops and had no option but to surrender. Nevertheless a relatively high proportion of fighter pilots landing behind enemy lines rejoined their squadrons quickly either unaided or with the assistance of Arabs. Every airman carried a pamphlet in Arabic promising monetary rewards for such aid, but the enemy too was not slow to appeal to the mercenary instincts of the tribesmen, and often positive help depended largely on the fortunes of the current campaign.

Airmen were greatly helped by the operations of the ground light-reconnaissance parties and the Long Range Desert Group which appeared at unexpected places in the enemy rear. It was often possible, too, for one pilot to land on the desert to pick up a distressed comrade. Even the crews of bombers badly damaged in attacks on long-range raids against Tobruk, Benghazi or Tripoli often had opportunies of evasion, for, in a crash-landing in the desert, there was a reasonable possibility that the whole crew might alight uninjured and remain together. Not that the task of regaining friendly territory was then easy, for in blazing heat by day and bitter cold by night sometimes hundreds of miles had to be traversed, keeping away from enemy supply routes and yet remaining close enough to known water-holes or the sites of past battles where water might be found. Here again the Arab might give help or he might frustrate the whole plan, which, for mutual support and encouragement, was far better attempted by a group than singly. One of the most notable of these desert journeys was made in July 1942 by Sergeants Warwick[7] and Barras[8] of No. 458 Squadron, who walked back from Tobruk to El Alamein, but there were several previous and subsequent successes of the same nature. So great was the total number of evasions that a "Late Arrivals Club" flourished among aircrew in the Middle East.

This relatively high ratio of evasion in the Middle East continued until mid-1943, but from the inception of the Italian campaign the number of

[7] F-O C. R. Warwick, 407086. 103 Sqn RAF, 458 Sqn, 37 and 281 Sqns RAF. Electrical traveller; of Prospect, SA; b. Neutral Bay, NSW, 18 Oct 1912.

[8] F-Lt A. E. O. Barras, MM, 406232. 458 Sqn, 37, 69 and 221 Sqns RAF, 1 Sqn. Journalist; of Perth, WA; b. Auburn, Vic, 26 Jan 1914.

such incidents fell away noticeably. It was still possible to regain Allied lines if an airman was shot down in no-man's-land, but a close-packed defence system had replaced the enemy mobile desert screens and it was far more difficult to avoid detection if deep in the enemy rear. Only a few Australians parachuting into German-held territory in Italy during the last 18 months of the war evaded successfully. As air operations extended over the Balkans, however, there were several instances in which R.A.A.F. men joined guerilla nationalist bands, and even at times fought with them before making their way back safely. Two Australians also crash-landed in Turkey, a neutral asylum offering prospects of repatriation similar to Switzerland or Sweden. As the *Luftwaffe* effort in the Mediterranean declined rapidly, however, the degree of necessity for evasion as well as the practical possibility fell sharply.

Thus, although the character, range and time of the operations produced ever-changing factors, in general, of every 12 R.A.A.F. men lost over enemy territory, 8 would be killed, one would evade capture and 3 would become prisoners of war.

Of the 1,476 Australians who were captured, the majority were seized very soon after landing, but some evaded for months before ill-chance, over-confidence or betrayal led to their discovery. The first prisoners were Australians attached to R.A.F. squadrons in the campaigns of 1940, but from April 1941 there was a steady stream of R.A.A.F. prisoners of war, quickening as the combined bombing offensive in 1943 absorbed an ever-greater percentage of Australians. In operations against Germany the vast majority of prisoners were from Bomber Command, although during the last 12 months an increased proportion of men from Second Tactical Air Force naturally suffered this fate. In the Mediterranean, owing to very dissimilar Australian dispositions and employment, bomber, fighter and shipping-strike squadrons suffered far more even losses over the entire period.

Aircrew created a special problem as prisoners of war in that, being wholly composed of officers and non-commissioned officers, they could legally be held only in non-working camps; as numbers grew, this imposed a great strain on the German capacity to fulfil her complete responsibilities under the Geneva Convention. All prisoners taken in northern Europe went naturally to German camps, but airmen captured in Libya were sent to Germany or Italy according to the nationality of the apprehending force, although the Germans frequently handed prisoners over to the Italians from such mixed motives as inability to evacuate them, as a "punishment" for refusal to divulge information, or even to bolster the prestige and good feeling of their ally. After the capitulation of Italy, all prisoners held there were transported to Germany, special emphasis being placed on the removal of airmen, so that all R.A.A.F. prisoners finally entered into the general pattern of the German prisoner-of-war problem.

Few prisoners suffered deliberate ill-treatment on capture. Only in late 1944, when the German Propaganda Ministry had inflamed civilian and police minds against "terror fliers", was there any real danger to

airmen. Then, especially in the devastated Ruhr region, Australians and others were beaten, stoned and occasionally killed by infuriated civilian mobs, while several R.A.A.F. men were assaulted during their initial detention by German secret police agents. Experience at the hands of Italian captors was chiefly of gross inefficiency in administration and provisioning, and neglect of injuries, rather than actual malevolence. The volatile Italians alternated between over-anxiety and overbearing behaviour, and prisoners suffered from the petty officiousness of junior officers. Italian transit camps in Africa were almost universally described as filthy, overcrowded and lacking in amenities, but here airmen were fortunate in that they were generally quickly transferred by aircraft, ship or submarine to the Italian mainland and thus avoided the worst miseries suffered by army prisoners. In 1944 a few R.A.A.F. men were captured in Rumania and Bulgaria and here again inefficiency was in evidence with, at times, ignorance or contempt for humane treatment.

All R.A.A.F. men captured by the Germans were sent as soon as practicable to the Dulag Luft—a central interrogation and transit camp at Frankfurt-on-Main. There they were lodged for varying periods but seldom longer than five days, in solitary confinement cells measuring approximately 8 feet by 5 feet. During the very early days meals and treatment in this section were very good and the guards talked freely of *Kameradschaft* between pilots, but these conditions deteriorated after 1940. One or more interrogations were made of each prisoner by Intelligence officers masquerading as "paymasters", or even as agents of the Red Cross organisation. General topics might be introduced to loosen a prisoner's vigilance and to see whether he would talk freely, and then cunningly-phrased questions concerning disposition of forces, technical equipment and tactics would follow. The mood of the interrogator might pass from urbanity to cold sternness, to real or simulated rage, in an effort to extract information. Bogus Red Cross forms were freely employed to extract operational dispositions under the pretext that only if full details were given would a prisoner's mail arrive promptly and his next of kin be advised that he was still alive. Australians who followed the correct procedure of stating only their name, rank, and number found their stay in this section very short, but those unwise enough to try to outwit the interrogators or to give false information on technical and Service matters were held for more and more interrogations and usually gave away valuable secrets. Only when it was obvious that no information would be forthcoming, or the Germans had secured what they required from the garrulous, was a prisoner transferred from the interrogation centre at Oberursel, the site of a former poultry farm four miles from Frankfurt, to the transit camp in that town. Here again by hidden microphones, and agents posing as prisoners, further attempts were made to obtain information from the unwary.

Normally men stayed in Dulag Luft only long enough to gather together a party of at least 40 British airmen—a period varying from four days to two weeks. The prisoners received baths, clean clothes, whatever

Red Cross comforts were available and excellent meals—the first degree of comfort and consideration which many of them had received for a week, or considerably longer in the case of unsuccessful evaders. In the earlier years of the war Dulag Luft was in many ways the best administered German camp, clean, fairly dry and by no means uncomfortable. Later, however, with the combined effects of Allied bombing the greatly increased volume of prisoners passing through and the rigorous conditions imposed by the system of interrogation evolved by the *Luftwaffe,* Dulag Luft deteriorated greatly. For most, passage through it, before regaining the companionship of their own fellows in an orthodox Stalag, became the first ordeal of prisoner-of-war life.

From Dulag Luft the early prisoners went to various Oflags[9] (for officers) and Stalags (normally base camps for working parties) for N.C.O. aircrew until the special Stalag Lufts became established—but throughout the war it was impossible to create sufficient non-working camps and accordingly most ordinary Stalags had one or more prison compounds added especially for airmen. Except in the early months or for grave disciplinary reasons air force officers were kept away from Oflags. Thus the first specialised permanent camp which Australians entered was Stalag Luft I at Barth on the Baltic coast, where, despite the frequent German assertion that air force prisoners had special treatment, food was scanty and extremely bad, the potatoes often being uneatable. Rations were carefully weighed in the raw state and those that were unfit for eating were never exchanged. The camp was divided into seven compounds, one measuring 300 yards square holding four huts of the conventional type. These were approximately 130 feet by 32 feet and divided into eight large rooms (18 feet by 20 feet) and six small rooms (12 feet by 8 feet). The original complement of the large rooms was six prisoners, and of the smaller ones two, but gradually the camp became so overcrowded that rooms held sixteen and eight respectively in double-tier bunks. Each room had a stove and electricity but the huts were unlined and were very cold during the bleak damp winter. At one time the prisoners were told that Australians and Americans from south of the Mason-Dixon line were to receive an extra blanket, but nothing more was heard of this proposal.

Apart from physical conditions, the airmen also got an insight into the subtler mental conditions of captivity, which for some was to last four years. The original commandant at Barth was kindly disposed towards the prisoners but could do little to ameliorate their lot as the direct control of prisoners devolved upon the camp *Abwehr,* usually a Nazi official, and in this instance a professor of psychology—"an extremely clever and troublesome individual" who "instituted regular and exhaustive weekly searches of the prisoners and their quarters". One Australian recaptured after escaping from Barth was visited in the cells by the commandant, who took the attempt in good part and tried to block the *Abwehr's* intention to have this officer transferred to a penal fortress camp.

[9] Oflag, an abbreviation of *Offizierlager*—officers' camp; similarly Stalag is an abbreviation of *Mannschaft-Stammlager*—a camp for men other than officers.


NORTH SEA
DENMARK
ENGLAND
London
Heligoland
Lubeck
OFLAG XC
STALAG XB
Barth
STALAG LUFT I
Sassnitz
Heydekrug
STALAG LUFT VI
Danzig
EAST PRUSSIA
STALAG LUFT IV
Gross Tychow
Stettin
Sandbostel
Bremen
Fallingbostel
NETHERLANDS
Hertogenbosch
Berlin
Schubin
OFLAG XXIB
Thorn
STALAG XXA (357)
Calais
St. Omer
Brussels
BELGIUM
Dusseldorf
Cologne
Warburg
OFLAG VIB
OFLAG IX A/H
Spangenberg
Elbe
Leipzig
Muhlberg
STALAG IVB
Sagan
STALAG LUFT III
Warsaw
Vistula
Amiens
Laon
Colditz
OFLAG IVC
Gorlitz
POLAND
Frankfurt
DULAG LUFT
Plauen
Kiel
Lamsdorf
STALAG VIIIB (344)
Beuthen
Gleiwitz
Paris
Saarbrucken
Rhine
Mannheim
Prague
Silesia
Alsace-Strasbourg
Teschen
Stuttgart
CZECHOSLOVAKIA
Lorraine
Moosburg
STALAG VIIA
Tuttlingen
Munich
Danube
Vienna
SWITZERLAND
AUSTRIA
Geneva
Budapest
Wolfsberg
STALAG XVIIIA
HUNGARY
Marburg (Maribor)
STALAG XVIIID
Gruppignano
PG 57
Drau
Po
Rezzanello
Gavi
PG 5
RUMANIA
Genoa
Chiavari
PG 52
Bologna
PG 19
YUGOSLAVIA
Macerata
Servigliano
ADRIATIC SEA
CORSICA
Chieti
Rome
Sulmona
PG 78
Capua
Bari
PG 75
ALBANIA
SARDINIA
MEDITERRANEAN
GREECE
IONIAN SEA
SICILY
ALGERIA
TUNISIA
▲ Dulag (Transit Camp.)
Ⓢ Stalag with Arbeitskommandos (O.R's. Camp with Work Camp)
■ Stalag or Oflag
△ Part transit – part permanent P.O.W. Camp.
MILES 100 0 100 200 300 MILES
ELAINE. P. GATES

From early in 1942 (and therefore affecting the majority of R.A.A.F. prisoners) Stalag Luft III at Sagan became the central camp for air force men. This camp grew steadily until it comprised five main compounds and a subsidiary one a few miles away at Bellaria, the R.A.A.F. men being housed principally in the east and north compounds, each with a total population of some 2,000 prisoners in huts similar to those at Barth. Non-commissioned officers went chiefly to Stalag Luft VI at Heydekrug, Stalag VIIIB at Lamsdorf, Stalag 357 at Thorn, Stalag IVB at Muhlberg or Stalag VIIA at Moosburg, though smaller numbers of Australians were scattered among a dozen other camps. Most men were in several camps as the increasing pressure from Russian and Anglo-American forces contracted the area under German control. Most of these camps had extremely well guarded air force compounds, surrounded by others acting as headquarters for working "commandos" of other prisoners of war and forced-labour gangs. The compounds were similar to those at Sagan, except that at Lamsdorf there were smaller huts divided into two dormitories instead of rooms, and as the camp populations grew, tents were sometimes erected in these compounds. Certain of these camps held officers and non-commissioned ranks without any differentiation, the general level of accommodation being lower than that at Stalag Luft III. No attempt was made by the Germans after 1942 to follow the strict requirements of the Geneva Convention and to concentrate all Australians in one camp or compound, although this policy was adopted for American airmen. Prisoners from all British Commonwealth countries were treated as in one category.

In Italy R.A.A.F. prisoners went first to the transit camp at Bari (Campo PG 75) where, when there were heavy influxes, administrative arrangements were totally inadequate and resulted in poor food, sanitation and medical provisions. The Italian guards were badly disciplined, slovenly and very filthy in their habits, and neither they nor their dandified officers seemed able to appreciate the prisoners' desire to improve the general conditions or even to control vermin—a problem which had already been badly neglected in the holding centres of North Africa. The Italians tended to get very excited about trifles, but real problems or requests were shrugged off with the eternal excuse of "*Domani!*" ("tomorrow"). Officers received preferential treatment but in practice their conditions were seldom good, while those of other prisoners were extremely bad. From Bari some officers went to fortress prisons, such as that at Rezzanello, where living quarters, although cold, damp and draughty, were clean and not too uncomfortable. Early arrivals during 1941 were overcrowded but enjoyed spring beds, good blankets and sheets. A civilian contractor provided cooks and staff, preparing fairly good meals from the basic ration, supplemented by purchases made outside with the prisoners' own money. All officers were paid in proportion to their rank, a flying officer drawing 950 *lire* a month, and practically all was spent on messing. An Italian canteen functioned at Rezzanello but sold little except wine as all other goods were extremely expensive. The prisoners had only a courtyard

measuring 60 feet by 40 feet for recreation purposes, and, although taken out for walks every fortnight, parole was not accepted and usually one guard accompanied each two prisoners.

Early in 1942 the basic food ration in Italian camps was cut drastically, not as a punitive measure but because of the general poverty of the country; in fact the Italians scrupulously attempted to maintain prisoners' rations at the same level as those of base troops (also cut at the same time) in accordance with the Geneva Convention. This inevitably meant hardships for the increasing number of R.A.A.F. prisoners, now sent principally to Sulmona (Campo 78), Chiavari (Campo 52) and Gruppignano (Campo 57) although others were to be found at Servigliano, Macerata, Capua, Chieti and the closely guarded fortress at Gavi. Conditions varied widely according to the personal character of the Italian commandant, but nowhere did camp life run smoothly for the whole duration. Where officers' and other ranks' compounds adjoined, as at Sulmona, the officers made what donations they could to the airmen's canteen, but generally recourse had to be made to illegal trafficking for extra food with guards and civilians. When the war situation was favourable to Italy "our captors were very arrogant and we suffered accordingly. Mail would be held for a long time in camps before distribution, but just before Italy capitulated some of the prisoners received as many as fifty letters in a few days." Even where, as at Bologna, new, clean barracks, kitchens and ablutions were provided for prisoners they found that, as at most of the other camps, the water-supply failed with exasperating frequency. Recreational facilities everywhere were poor, and life devolved into a constant round of attempting to secure the minimum requirements of food and cleanliness in the face sometimes of positive obstruction and at best a passive inefficiency.

The standard of vigilance in Italian camps was high, large numbers of troops guarding each camp, and very few attempts were made to escape by tunnelling or other means. Several Australians had escaped for varying periods from transit camps in North Africa, but the most determined attempts to get away from a mainland camp usually failed and the Italians were prone to treat recaptured prisoners with great brutality. Flight Lieutenant Jones[1] and two others cut the wire at Bari during August 1942 but were at liberty only five days. The only large-scale escape occurred during October 1942 when Warrant Officer Comins[2] and Sergeant Canning[3] with 17 other prisoners, including Australian soldiers, made use of a tunnel which they constructed at Gruppignano. Escapers, however, suffer from the great disadvantage that their positive identity and exact point of departure are accurately known to the searching authorities. Three divisions of troops and many policemen were alerted and all 19

[1] F-Lt M. J. Jones, 402240. 118 Sqn RAF, 450 Sqn. Accountant; of Manly, NSW; b. Manly, 14 Aug 1917.

[2] F-Lt T. B. Comins, 402111; 38 Sqn RAF. Chemist; of Double Bay, NSW; b. Yass, NSW, 14 Jun 1912.

[3] F-Sgt T. E. Canning, 5071. 3 Sqn, 6 Sqn RAF. Assayer; of Queenstown, Tas; b. Finley, NSW, 26 Nov 1918.

prisoners were found within a few days. As a result of the intervention of the colonel of the unit which recaptured them, Comins and Canning escaped the flogging to which the others were subjected. This officer himself had escaped from a German prison camp in his youth and now arranged a pantomime show of beating the Australians, who, however, suffered when back at Gruppignano by being put on half rations, handcuffed and kept imprisoned in only their underclothes for two days.

With the capitulation of Italy came the first real chance for prisoners to escape, but senior officers in all camps were advised to hold their charges *in situ*, and the Italians promised if necessary to defend them against the Germans. Italian intentions, however, were not translated into fact and by swift ruthless action German forces captured most of the camps intact. Individual prisoners at some camps ran into the hills and usually found Italian peasants willing to shelter them. Many were recaptured by German patrols, but Flying Officer Gemmell-Smith[4] from Servigliano remained in hiding until he joined up with Allied forces in June 1944. The Germans were anxious to evacuate prisoners, especially air force men, to Germany without delay, but while these movements were taking place Flying Officer Kirkman[5] escaped from Bologna and Pilot Officer Buckland[6] and Warrant Officer Einsaar[7] escaped from Macerata, and in 1944 were eventually evacuated by sea to friendly territory. The other unfortunate prisoners who had been buoyed up with hopes of a quick end to the stagnation of internment were crowded into cattle trucks and sent in deplorable conditions northwards. Several R.A.A.F. men managed to jump from these trains and two, Flight Lieutenants Eggleston[8] and R. S. Jones, reached Switzerland together after an adventurous journey on foot. All the others were recaptured after short spells of liberty and went with their fellows to Germany.

Australian prisoners in south-eastern Europe suffered even worse hardships than in Italy. At Bucharest airmen were held in a former primary school and sanitation was appalling, food plain, meagre and of poor quality, and Red Cross comforts were either withheld or stolen. However, in Rumania there was little actual ill-treatment and medical care was good. At Shumen camp in Bulgaria the nadir was reached. One captured Australian was driven with other prisoners round Sofia while the population jeered and spat at them. The rank and file of the army were rather less bitter but the officers were even worse than the civilians. Interrogations were pressed to extreme lengths in which beatings, clubbing, horsewhipping and such grotesque brutality as tying men to gun barrels in the

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[4] F-Lt R. Gemmell-Smith, 189453 RAF. 223 and 108 Sqns RAF. Cane overseer; of Sydney; b. Ba, Fiji Islands, 21 Feb 1913.

[5] F-Lt J. M. Kirkman, 406017. 456 Sqn, 232, 64, 1435 and 603 Sqns RAF. Clerk; of Kellerberrin, WA; b. Northam, WA, 12 Jun 1918.

[6] Sqn Ldr J. C. Buckland, 401006; 14 Sqn RAF. Bank clerk; of St Kilda, Vic; b. Melbourne, 27 Jan 1920.

[7] F-O L. A. Einsaar, DFM, 407318; 14 Sqn RAF. Policeman; of Broken Hill, NSW; b. Awaba, NSW, 28 May 1913.

[8] F-Lt F. F. H. Eggleston, 252761; 3 Sqn. Industrial student; of Melbourne; b. Melbourne, 28 Jun 1914.

hot sun were not uncommon. Officers continually threatened to shoot prisoners for minor misdemeanours, and after an unsuccessful escape attempt the commandant threatened to throw a hand grenade into a hut filled with prisoners. While these extreme measures were not actually used, rifle butts or bayonets frequently emphasised orders from the guards. The overcrowded huts were infested with bugs, fleas, cockroaches and rats, sanitation was primitive, food, bedding and utensils were all insufficient and no clothing whatever was supplied. Conditions improved slightly as the Russian Army drew near, and soap was issued, the water ration was increased, comforts were provided and a fruit vendor was allowed to visit the camp—but this made little difference. Throughout the period of captivity no attempt was made to give medical attention with the result that scabies, malaria and dysentery were rife. There was no copy of the Geneva Convention at Shumen until June 1944 and at least 22 of its Articles were consistently and deliberately broken. In these appalling conditions Flight Sergeant Tyrell[9] earned special praise from senior American officers at the camp for his exceptional courage and tireless work on behalf of his comrades.

The transfer of prisoners from Italy in late 1943 greatly taxed accommodation of camps in southern Germany and Austria, although the men were gradually sent to appropriate camps in other districts as well. At some camps men had to sleep on tables, lockers or even stone floors until final redistribution was effected but somewhat to their surprise the newcomers found a sense of purpose which had generally been lacking in Italian camps. The Germans were reasonably consistent in their own conception of military honour and the status of prisoners, and the camps, although very uncomfortable, were clean. German administration was efficient and less tinged with personal sentimentality or prejudice, except in Luft camps proper, where political officials became increasingly hostile to airmen as the war in the air brought devastation to Germany. The commandants did their best to govern camps through the prisoners themselves. There were two compulsory roll-call parades every day, or more frequently in an emergency; lights were extinguished early or even barracks locked at sunset each evening, but otherwise it was left to the Senior British Officer, his barrack leaders and his various committees to provide a framework for day-to-day routine. In almost every case inspiring, wise and supple leadership was available and it became "a matter of honour to all prisoners not to show weakness before their captors". Stalag Luft III at Sagan was "considered as an air force station" and normal R.A.F. disciplinary regulations where applicable were issued by the Senior British Officer. The general effect of both the more even attitude of the Germans and the determination of the prisoners was to make life in Germany less of a selfish struggle for existence and individual flight from frustration than it had been in most Italian camps. Team-work and general interest now drew an increasing number of men to join in

[9] W-O R. Tyrell, 426715; 40 Sqn RAF. French polisher; of Dutton Park, Qld; b. Kent, England, 4 Dec 1921.

communal activities and ventures, although there inevitably remained some who failed to adjust themselves to the hardships of prison existence.

Food rations issued in German non-working camps were without exception totally inadequate. Usually the cook-house supplied swede soup, cooked potatoes and hot water, while each room or barracks drew bread and a very restricted fat and dry-ration quota for private cooking. There is little doubt that, but for the provision of food parcels by the International Red Cross Society and Order of St John, wholesale malnutrition and many deaths from starvation would have resulted. Indeed the Germans appeared to calculate Red Cross provisions as part of the normal ration and keep food supply down to an absolute minimum, so that slight variations on various pretexts would have a pronounced disciplinary effect. Warrant Officer Currie,[1] camp leader and compound commander at Stalag 344, Lamsdorf, hitherto known as Stalag VIIIB, reported: "Morale generally varied with the food situation. . . . When food was short the men became restless, found dissatisfaction with trivial matters and discipline would unconsciously relax." The regular arrival of Red Cross parcels thus became to all prisoners a factor of paramount importance, and camps remote from the Swiss border suffered from irregular supplies due to transport difficulties. The normal issue was one parcel each week to every prisoner, effected by providing each group of 14 men with two parcels every day. Although parcels were occasionally withheld, the Germans, unlike the Italians, did not pilfer from Red Cross supplies, although with every passing month the contents must have appeared more attractive. Prisoners themselves received and checked invoices and controlled issues under the vigilance of guards who were instructed to puncture all tins to prevent hoarding for escape ventures. Only during the general transport dislocation of the last months of the war, when moreover many camps were moving repeatedly owing to Allied advances, was there a general failure to maintain issues, and even this was palliated by mobile Red Cross convoys which rushed emergency supplies to each new location. Prisoners could also receive private parcels from relatives or patriotic organisations, but these together with general mail were far more subject to delay and loss before they reached the camps.

The theories and practice of cooking naturally loomed large in the minds of prisoners, and "calories", "vitamins", "bulk" formed a considerable part of their thoughts and conversation. Much interest was taken in the differing kinds of parcels due for delivery, those packed in Canada being highly prized "since they contained butter, an excellent powdered milk and more chocolate, cheese and biscuits than parcels from any other country". Considerable ingenuity also went into the erection of ovens, hot-plates and draught-boilers made from odds and ends which gave maximum heat from the most unpromising fuels and rubbish. At nearly all German camps the fuel ration was poor and became steadily

[1] W-O A. McG. Currie, MBE, 407822. 458 Sqn, 12 Sqn RAF. Station manager; of Menindee, NSW; b. Claremont, WA, 19 Mar 1908.

worse, so recourse was had to roots within the compound, and to joists, beams and bed boards secretly removed under the noses of the guards. When part of Stalag Luft III moved to Tarmstedt, near Bremen, the prisoners dug up two roads made of crushed coke and slag and thus acquired fuel of a sort. At other camps wood-collecting parties were allowed out of camp, but, as the supply to each hut was limited to whatever its single representative could drag home, little relief was secured and the secret demolition of buildings continued. Even furniture which men had made to ameliorate their bleak existence was frequently sacrificed in winter to give warmth or a hot meal. Tea and other hot drinks became one of the most important factors in keeping warm, and frequent "brews" developed into a ritual.

Under these circumstances food and tobacco were the natural media of exchange, but in Germany control was instituted firmly by the Senior British Officer. In Italy food had been used widely by individuals to foster "rackets" and "black marketing" with guards and civilians. German guards were also corruptible, but transactions with them were confined to procuring things of communal rather than individual benefit, or to acquiring maps, radio parts, civilian clothing, tools and other things required for escapes.

Within the camps organised food auctions or exchanges were conducted under strict supervision—the system reaching perhaps its highest form in Stalag Luft III. In all Red Cross, personal and tobacco parcels were some items more attractive to some prisoners than to others, so, after the formation of "Foodacco" at Sagan, any individual could lodge unwanted articles in a central store and be credited with so many purchasing "points" according to the current demand for each class of goods. The points could then naturally be used to secure other articles desired if they were available in the store. Later in 1944 the system of a fixed price was superseded by daily auctions which worked satisfactorily, prices remaining fairly stable except for periods when the Red Cross parcel issue was interrupted. A small commission was charged by the "Foodacco" committee, and these profits were usually returned in the form of prizes for sports, competitions and theatre shows. As plentiful supplies of tobacco and cigarettes reached Sagan a subsidiary scheme called "Tobacco-Acco" was instituted to prevent a glut of tobacco forcing up the price of food; food points could be converted to tobacco points in the ratio of 1 to 3 but tobacco points were never converted into food points. Clothing auctions were also held weekly, again with food points as the exchange medium.

At Sagan also the Senior British Officer, Group Captain D. E. L. Wilson, R.A.A.F., in the summer of 1944, began an organised system of food saving which became known as the "W Plan". The broad purpose of this scheme was to give each prisoner a reserve of food which could not be eaten until either the situation in the camp deteriorated to approximate starvation, or until military chaos occurred and the German guards fled, when this reserve would tide the prisoners over until help was assured

from Allied sources. Each prisoner set aside small quantities of concentrated food little by little until his full quota was attained; it was then stored in a special food locker and could not be consumed without the express permission of Wilson. In November 1944 a German High Command ruling was issued that all storing of food must cease and that lockers must be empty at the beginning of each day. Faced with this ultimatum and the knowledge that German guards who had refrained from pilfering would relish the opportunity to confiscate food legally, the prisoners devoured a large proportion of the "W Plan" food in a terrific orgy of feasting. Under cover of this ostentatious emptying of lockers, however, much food was hidden in more secure places and did prove of great help during the dreadful winter months of 1944-45.

Second only to the overriding problem of food in the life of the average airman prisoner of war was the importance of maintaining physical fitness. The absence of manual work, inadequate heating arrangements, and usually the opportunity of a hot bath only once every fortnight increased the incidence of disease among men subjected to long terms of imprisonment. Many therefore consciously prepared themselves by physical exercise routines, by gardening, by self-imposed daily labour, but mostly by sporting activities, to meet added privations during an incalculable period of captivity. In all the camps the theory of the survival of the fittest was a bitter but terribly potent argument. Physical exertion, too, was an anodyne to the frustration and constant humiliation of being penned in a small space, and the feeling of owing every small amenity of life to the tolerance of the captors. Australians found that the space available for games varied considerably from large open parade-grounds suitable for football and cricket at Sagan, Barth, Heydekrug and Gross Tychow, to small areas between living huts as at Lamsdorf where games could be played only at the continual risk of broken windows, which were rarely replaced by the Germans and were repaired with cardboard from the Red Cross cartons. Sporting equipment was also made freely available by the Red Cross, the Swedish Y.M.C.A. and other philanthropic organisations, but again geographic and transport conditions made the supply to individual camps unequal. Whatever the conditions, however, Australians attempted to make the most of existing opportunities for sport and thus fostered physical health besides avoiding in large measure the dangers of those prisoners who withdrew more and more, both physically and mentally, into a listless ghost world of inaction and inability to rise superior to their circumstances.

In the larger camps R.A.A.F. teams competed in football and cricket competitions and even cricket "Tests" were staged at Sagan, but everywhere the emphasis lay not so much on a few important matches but on ensuring that as many individuals as possible should be encouraged to play football, cricket, hockey, volley ball, baseball—in fact any healthy exercise where team spirit was engendered. Communal games undoubtedly helped to develop tolerance, restraint and an unruffled reaction in the most trying circumstances—a hidden part of the discipline at which Senior

British Officers of camps were always aiming so that the prisoners could always retain their unity of purpose. Apart from field games, airmen at some camps were permitted to swim in the large water-tanks installed for fire-fighting, and in hard winters skating was similarly possible. Athletic competitions were held regularly at most camps.

The majority of air force compounds provided wide educational facilities for airmen, not only as part of the administrative moral discipline and to encourage a positive mentality among prisoners, but also in response to the very general desire of most individuals to improve old or acquire new knowledge which would help them in the future. The education committees set up by the prisoners themselves, with the passive support of the Germans, controlled general and technical libraries, instituted regular courses of study, held examinations on behalf of London University in a wide range of subjects, and promoted lectures of general interest, debates and discussion groups. There was no lack of instructors suitably qualified to teach most academic, technical and commercial subjects, and the high average intelligence of airmen made the task of teaching under adverse conditions much easier, although men often found difficulty in concentrating their minds when in captivity. The majority of R.A.A.F. prisoners took advantage of some of the lecture and study facilities provided by these camp education committees, but in addition more than 170 Australians had correspondence courses arranged for them through the British War Office, the R.A.A.F. Educational Services in Australia, the London University, and private bodies. Small independent groups in each camp held classes in languages and such commercial subjects as shorthand. Reference libraries of which the most comprehensive were at Barth and Sagan, drew many books from the New Bodleian Library at Oxford, but many others came in private parcels to individuals. Students wishing to sit for the matriculation examination of London University were accommodated with books for all their subjects, and for more specialised study the requisite book could always be acquired, though here again Sagan as the central mail depot was in a favoured position.

Wider recreational and cultural activities were also studiously fostered. Some camps had the advantage of containing army regimental bandsmen and could form dance, salon and symphony orchestras, but others invariably contained enthusiasts who, though their talents might achieve little except noisy jazz, yet gave much pleasure and consolation to their fellows. Huts were equipped as theatres, sometimes with timber supplied by the *Luftwaffe* authorities but mostly with three-ply Red Cross crates and other material which the prisoners could salvage or remove secretly from other buildings. Curtains, costumes, stage property and effects were similarly contrived from blankets and other private possessions, although in rare instances it was permitted to hire costumes from outside agencies.

At Thorn "The Oasis" provided regular concerts and plays for both army and air force prisoners, although in 1944 concerts were forbidden on Sunday, as the local population, starved for entertainment, would gather outside the camp perimeter and dance to the prisoners' music.

At Heydekrug (Stalag Luft VI) a new play was produced every month, 16 performances being held so that everyone might see each show. Plays, musical comedies and melodramas were all capably produced, despite the difficulty of finding sufficient sensitive and talented female impersonators for feminine roles. At Sagan Wing Commander H. R. Larkin, an Australian in the R.A.F., was prominent in organising the theatre, and a group of Australians followed the example of other national groups and produced a short play of their own. A choir also flourished at Sagan, its most ambitious project being an excellent performance of Handel's *Messiah* at Christmas 1944.

The attempt to simulate normal conditions of life also led to camp newspapers, despite lack of sympathy on the part of the Germans. At Lamsdorf *Stimpt* (literally "It's O.K."), despite its name, frequently puzzled and annoyed the Germans, and newspapers were not encouraged in any camp. They were valuable, however, in that, among people sensitive even to the most fantastic rumours, they gave sober facts, and incidentally the chance for a prisoner to laugh at himself and often at the Germans. At Sagan again this movement reached perhaps its highest form in Luft camps, and the 12 to 16 sheets pinned up every Sunday were surrounded by eager readers throughout the week. Canadian and United States prisoners at Sagan conducted their own newspapers, but the main project contained general news from Great Britain, Australia, New Zealand and South Africa; news from the film and theatre world; articles compiled from news in letters from home or from newly-arrived prisoners; translations from German newspapers; and Service news including lists of casualties and promotions. On the lighter side a cartoon depicted "Kriegie Joe" in an escapade of topical interest, and well-meant but ill-expressed extracts from letters catered to the mordant sense of humour of the prisoners. A statement regarding Red Cross and mail, a selected recipe, notification of any change in the "Foodacco" organisation, and the latest news of the Senior British Officer's conference with the commandant were always published first in the newspaper. There was also a review of the current production and notices of future shows at the theatre as well as sports results, programs and critical notices. Some camps also produced secret newspapers dealing with military affairs, but these were less of an educational than a security and resistance venture.

All these measures sponsored by prisoners' administrative committees, tended to make the lot of individuals more comfortable and endurable. They helped to combat the constant fear in men's minds of "barb-wire psychosis" which would unfit them for civilian life again. These peaceful pursuits also camouflaged the activities of escape committees and security organisations which flourished in each camp. All airmen realised that they remained combatants even as prisoners and that they had a moral right and duty to escape if they could. The Germans offered parole to officers, but it was rarely if ever taken, and as soon as each camp settled into routine life the yearning for freedom crystallised into passive and active resistance to German security measures. From the beginning,

prisoners attempted to distract and outwit the guards at the daily roll-calls, so that there was continual anxiety and confusion as to the correct number present. Prisoners, even fluent speakers of German, were afflicted by deafness when cooperation was required by guards. Food and contraband were successfully hidden despite increasingly conscientious searches by the guards, by the *Abwehr* authorities, and from mid-1943 by *Kripolitzei* (Political Police) as well. Warrant Officer Redding[2] at Heydekrug used his skill as a cabinet maker and joiner to construct dummy Red Cross parcels, false bottoms to crates, hidden panels in walls and ceilings, two "rifles" which were used in two escapes, even a complete false section in a wall, and most of these and similar caches at Heydekrug were never discovered. Indeed on one occasion officials made a fruitless search only to find that they themselves had lost their keys, scarves, raincoats and the roll-call records, which had been spirited away and hidden. Prisoners held in solitary confinement cells were inexplicably supplied with forbidden luxuries, high-power lamps replaced the pitifully-inadequate 25-watt lamps ordained in living huts, and in every way German supervision and restriction were thwarted and overcome. Booby-traps and pamphlets ridiculing Germany appeared constantly in the path of the unhappy guards who felt the derision of prisoners without being able to hold any individual responsible.

A coordinated passive resistance campaign began at many Stalags in September 1942 when prisoners were shackled in the day-time, allegedly as a reprisal for ill-treatment of Germans during the commando raid on Dieppe. The prisoners soon found ways of unlocking their handcuffs and walked freely about under the noses of German guards only to assume their shackles again during the evening, especially to insist that the guards go to the trouble of removing them officially. This farce was heightened at Lamsdorf early in 1943 when R.A.A.F. men were told that as the Commonwealth Government had not taken similar action in their own camps, they would be exempted as a special privilege from the chaining order. The Australian prisoners gleefully refused to be exempted, and some time later the Germans abandoned this "reprisal" which for the most part had merely made them appear ridiculous.

In these and many other ways the captives, united and well disciplined, secured some degree of moral ascendancy over their guards, the campaign having its finest flower in Oflag IVC at Colditz, a special camp for trouble-makers, where "Bosch baiting" was a deliberate planned program achieving great ingenuity and effect. In Stalags run by the German Army, the guards were mostly older second-line troops, of limited intelligence and phlegmatic disposition, but the *Luftwaffe* guards were stricter and more alert. German "correctness" helped to make this pin-pricking morale campaign succeed though it would have brought wholesale reprisals from excitable guards in Italian camps. Even so, when battle-weary guards

[2] W-O W. F. Redding, 412184; 425 Sqn RCAF. Carpenter and joiner; of Newcastle, NSW; b. Wallsend, NSW, 22 Jun 1910.

invalided from the Russian front began to appear in Stalags, these passive resistance activities occasioned many savage individual reprisals.

More thorough-going measures were centred on the Intelligence and escape committees. Air force prisoners lacked the opportunity for active sabotage open to those employed in working gangs, but by the reports of men evading in Germany before capture, by keen analysis of German newspapers, and by contacts among the more venal guards, much information was gathered. Even the most methodical censorship failed to prevent the reception and dissemination of important matters in correspondence between prisoners and the outside world, and towards the end of the war several camps had clandestine wireless receiving-sets. The next essential was to have a proper sense of security so that even by mistake nothing could be compromised. Thus new prisoners and those known to talk freely were carefully prepared before they were apprised of any secret activities, and some men never knew the identity of the members of the escape committee.

When the Germans, in addition to full-scale inspections and searches, began to employ "ferrets" (individual free-lance searchers) the prisoners replied at Sagan by setting their own guards on each gate. Ferrets were duly "clocked in" and "out" by a timekeeper and "duty pilots" followed each one closely. Suitable distractions were made by organised teams when time was required to warn some of the prisoners engaged on escape or other compromising activities. Well-founded German suspicions were very rarely rewarded by any positive evidence, but nevertheless preparations were constantly going forward in all camps for escape ventures. The escape committee rigidly controlled all such activity and forbade schemes involving too much danger, or in cases where the proponents were personally unfitted to make the long and difficult journey out of the vast territories dominated by Germany. An unsuccessful escape frequently compromised other ventures and always led to increased enemy security measures inside the camp in question. While only authorised projects were allowed to be put under way, the escape committee would at the same time enlist the help of many trustworthy prisoners who, though themselves unfitted for actual escape, could contribute in various ways to other men's attempts. At Heydekrug the "Tally Ho Club" had 150 members concentrating entirely on aids to escape, and similar numbers of full-time workers were available at other camps. Some of the essentials necessary to give any escaper a chance were disguised clothing and luggage, compasses, concentrated-food supplies, maps and forged documents, varying from passports, identity cards, travel permits, rail warrants and food ration cards. Although German search methods were less effective than Italian, relatively few men entered the camps with their own escape aids, and these consequently had to be made or duplicated from whatever materials were at hand.

Organisations such as the Tally Ho Club could depend naturally on the whole-hearted support of all prisoners, but usually most of the members worked secretly, well-camouflaged against surprise raids by the inoffensive

day-to-day activity of the camp. The men planning escape routes or maps were frequently found among the study groups, or ostensibly preparing articles for the camp newspaper; concentrated foods could be cooked at the same time as meals in any hut; the tailors making civilian clothes, or fake German uniforms, could safely do most of their work under the pretence of preparing costumes for the theatre. R.A.A.F. men found that their blue battledress and uniforms were very much in demand for they were easily turned into convincing civilian-type working clothes. As these various aids were completed they were securely hidden until needed, together with small articles such as hacksaw blades, compasses, maps, currency and specimen documents, which were contained in special parcels sent from the United Kingdom. One article smuggled in was a type of camel-hair blanket, which when dampened revealed a design for cutting and sewing into a civilian overcoat. Anything which could not be made or smuggled was secured through corrupt guards, who were first seduced into minor illegalities by the "official trader" or "contact man" of the escape committee and then forced into greater cooperation under threat of disclosure. This brazen dealing with corrupt guards produced buttons, badges and trimming for clothing, cameras for passport and identity card photographs, documents and even, in one instance, weapons. Where, as at most Stalags, the air force compound was surrounded by others holding working gangs of prisoners and slave labourers, more aids could be secured owing to the greater opportunities for stealing or bartering.

The same care and attention went into planning the initial break-out of camp. Underground tunnels, the traditional method of escape, were constructed in most camps but were not favoured as the Germans were constantly searching for them. However, some of the more impatient prisoners were employed on tunnelling projects bound to be discovered, and thus acted as a cloak for more serious ventures. Air force compounds were sited by the Germans, and laid out skilfully with the specific object of making tunnelling difficult, while mines, deep ditches, sounding gear and even steam-rollers were periodically employed as means of detection, in addition to the normal searches, which frequently found the entrances to tunnels. Many Australians helped to dig tunnels, but of the 11 who escaped from compounds by this means only one man was at liberty for more than a few days. The German authorities had three degrees of special searches for escapers, varying from a formal notification in the *Police Gazette* to the *Gross Fahndung* ("great over-all round-up") which immediately called into action 60,000 policemen plus all available units of the armed forces, civilian Home Guard, Hitler Youth and other auxiliaries, who remained on this duty until successful. The *Gross Fahndung* covering all Germany, or the secondary search of the same intensity within a particular district, was ordered only for mass escapes of more than 10 prisoners, or on the escape of a particularly important prisoner. Precise descriptions of all prisoners rated as important were held in Berlin, and, although at first this applied only to men of the rank of colonel and

above, in 1943 all airmen were included in this category. Thus on every known escape of an airman, full particulars were sent by teleprinter within a matter of hours to all agencies cooperating in the search. Tunnel escapes, because they were usually mass escapes, thus carried within themselves the seed of their own failure, for the *Gross Fahndung,* although very expensive in manpower, was most efficient, and on one occasion in 1943 no fewer than 83,000 persons wanted by the police—criminals, foreign workers, deserters and prisoners of war—were apprehended during such an operation. Airmen, commencing from a known position, had small chance of escaping the wide net cast during a general alarm, because, even minute discrepancies in forged papers caused them to be detained for further investigations, which usually revealed their true identity.

Forty-one Australian airmen succeeded in escaping from German prison camps but only five reached England through neutral territory. None of the five succeeded at his first attempt, and of the others some made up to seven fruitless attempts to regain their liberty. Recapture by German armed forces entailed immediate return to the prison camp and punitive detention for varying periods up to 28 days as specified in the Geneva Convention. Those recaptured by police authorities, however, frequently suffered ill-treatment under the pretext that they were secret agents and one Australian was held for over a year in a civilian gaol. Punishment tended to become more and more severe but rarely blunted the purpose of an avowed escaper, although he was always watched more carefully thereafter and accordingly had to avoid open contact with other intending escapers to prevent them also becoming suspect. Every failure, of course, built up the individual and general knowledge of the prisoners, and, though only a few men could hope to have eventual success, the fire of ingenuity and determination was never extinguished.

Apart from the tunnellers, most Australians turned to the method employed by Sergeant K. B. Chisholm of changing identities with men in working camps. This gave the double advantage that physical escape was much simpler when the escaper was located away from the camp itself, and there was not only an inevitable delay in reporting the escape but the search for men assumed not to be airmen but private soldiers was often perfunctory and always far less efficient than for a listed "important person". Thus 19 Australians escaped, principally from Lamsdorf and Muhlberg, and enjoyed freedom for varying periods until insufficient preparations, sickness, or sheer bad luck led to the recapture of 16 of them; three of them succeeded in getting clear away.

All other schemes suffered from the same disadvantage as tunnelling in that search was made for specific known identities whose physical characteristics were correctly reported, but when escapes were made by individuals or very small parties, the German police concentrated chiefly on the frontier posts only. Men escaped by cutting or climbing the wire fences surrounding the compounds and sometimes their departure or identity was not known for some time in consequence of mass deception by the rest of the prisoners on roll-call parades.

One Australian attempted a reversal of this technique by successfully remaining hidden inside the camp at Barth for six weeks until the hue and cry attendant on his reported "escape" had died down, but eventually he was caught before his real escape through the wire. The same man in January 1942 buried himself under the snow on the football field during a football game, and after five hours, when a bugle-call from a cooperating prisoner informed him that it was dark, he climbed the outer fence and made off, but was caught soon after because his left leg was frost-bitten and he could walk only with difficulty. Ill luck also attended him two months later when he walked boldly through both gates at Barth disguised as one of the *Abwehr* officers, only to meet face-to-face in the woods outside the very man whom he had impersonated. This offence led to his transfer to Sagan but, undeterred, he there escaped from the detention cells themselves with the aid of a home-made key and a suitable demonstration by another prisoner to distract the guard's attention. On this occasion, travelling by train and stolen bicycle, he reached Poland before recapture. Once more back in the detention cells at Sagan, he promptly began to cut through the bars with a file smuggled in to him, but again he was discovered and this time sent to the fortress camp at Colditz. On arrival there in April 1942, he exchanged identities with an orderly due for transfer to another camp but was recognised as the party was marching through the prison gate. Three more attempts were made at Colditz with variations on his previous schemes but they all failed.

Another Australian escaped while moving by train from hospital to a Dulag Luft by offering his guard drugged sugar for his tea; one man walked out of a hospital; and another absconded from a wood-gathering party from Muhlberg. Another simple device which earned a month's freedom was a violent fit simulated by one man at Lamsdorf while going to a medical examination outside the camp, while four other Australians escaped from marching columns of prisoners of war during early 1945.

The first Australian to reach safety was Flight Lieutenant H. N. Fowler of No. 615 Squadron R.A.F. in March 1943. Fowler's Hurricane was shot down in France on 15th May 1940, and, though he fought for a day with the remnants of a retreating French company, he was taken prisoner and reached Barth in July 1940. Here, after he had spent a year of quiet activity as parcels officer, the guards grew careless and he was able to secrete, in the parcels store, food and a bogus German uniform. At a suitable moment he walked through the guards' quarters and made off, only to be arrested at Sassnitz while trying to board a ship bound for Sweden. Fowler was then sent to Colditz as a dangerous prisoner, but immediately began planning with two other British and three Dutch officers to escape by a mixture of tunnel and disguise technique. The tunnel led from the most unlikely place—the office of the *Stabsfeldwebel* himself—and terminated in a clothing store outside the castle proper but inside the guarded perimeter. During the night of 8th-9th September 1942 the party passed through the tunnel and, after the early-morning change of guards, two Dutchmen dressed as a German officer and N.C.O. led

the others disguised as Polish orderlies out of the store. The bogus N.C.O. had a set of skeleton keys to open the various compound gates and all went well until the final gate was reached, when the keys would not open the lock. The six men were about to drop all pretence and climb the fence when a German guard arrived with a key and profuse apologies to the "officer" for not being there before. Once clear of the castle the conspirators changed into civilian clothes and split into three pairs all with different destinations. Four men were quickly captured although by an intentionally rowdy roll-call the prisoners in Colditz delayed the discovery of the escape. Fowler and his Dutch companion walked hard and by 4 p.m. reached Rocklitz 20 miles away and took a train to Plauen and thence next day to Stuttgart. Here they spent a night in a suburban hotel and, on 10th September, despite long delays on the railway which seemed to be in chaotic state, reached Tuttlingen. From here they decided to cross the heavily patrolled frontier area on foot and, moving along roads, safely slipped into Switzerland early on 13th September. They had been stopped earlier by one S.S. policeman who examined their papers but let them pass without any difficulty. To Fowler, Switzerland was only an intermediate stage of his journey, and early in 1943 he crossed the frontier again for a hazardous trip across southern France to Spain and thence through Gibraltar to England.[3]

Pilot Officer McSweyn,[4] who reached Gibraltar in December 1943, also employed a mixture of two traditional escape techniques. He was shot down during a raid against Bremen on 29th-30th June 1941 and was captured three days later while starting up the engines of an Me-110 in which he hoped to reach safety. At Spangenberg (Oflag IXA/H) he attempted to climb out of the fortress by means of a rope and, although seized by guards, broke away and was safely back in his bed before a general search was made. At Dossel, near Warburg, (Oflag VIB) to which he was later transferred five tunnel schemes were all discovered by the guards and McSweyn was also caught attempting to escape with wire cutters made from fire-grate bars. On another occasion he hid in the back of a laundry cart, but unfortunately the sentry, who did not always search thoroughly, discovered him at the main gate. During the winter months of 1942-43 he engaged on several tunnel schemes at Schubin (Oflag XXIB) but this camp broke up in April 1943 before his preparations were completed. The officers knew that they were to be transferred to Sagan and McSweyn decided to change his identity as there seemed little hope of escaping from a *Luftwaffe* camp. Accordingly with the aid of blank identity cards he changed places on the train between Schubin and Sagan with a private soldier, and entered Stalag Luft III in the role

[3] Swiss policy was to intern able-bodied escapers although certain sick escapers were repatriated to their homelands. There was no convenient frontier exit point into Allied territory such as Gibraltar offered in respect of Spain. Internment in Switzerland although physically comfortable was mentally abhorrent to diehard escapers. Fowler's calculated risk in leaving this asylum was taken by other internees as occasion permitted. In 1944 Flight Lieutenants Jones and G. T. Chinchen left Switzerland to join the French Maquis.

[4] Sqn Ldr A. F. McSweyn, MC, AFC, 402005; 115 Sqn RAF. Accountant; of Rockdale, NSW; b. Sydney, 31 Jul 1918.

of an orderly. Here for three months he volunteered for menial and unpleasant jobs only to throw down his tools and refuse to carry on after a short time at each. The reputation he achieved as a refractory nuisance, backed up by the recommendation of the Senior British Officer who was aware of his intentions, led in July 1942 to a transfer to Lamsdorf.

The first part of McSweyn's plan was thus accomplished, in that he found himself under an assumed name in a poorly-guarded working compound, and after a few weeks he slipped away from a potato-digging gang, obtained a bicycle from some Polish workers, and reached Danzig after five nights' travelling. At Danzig he successfully stowed away in the coal bunker of a small Swedish ship which had pulled away from the wharves and was bound for Sweden when German police threw tear-gas bombs into McSweyn's hideout and he was forced to give himself up.

Returned to Lamsdorf, McSweyn immediately began a new scheme with very thorough preparations. Firstly he enlisted the aid of a German Jew to forge a complete set of personal and travel documents for him in the guise of a French workman returning to Marseilles unfit for further work in Germany. It took six weeks to prepare a false medical certificate, French identity card, travel passes and a letter, purporting to be from a high army department, giving permission for two men to travel straight through to Marseilles and setting out that other personal documents had been destroyed in Berlin during an air raid. As a companion in this escape, McSweyn chose a New Zealander who spoke fluent German and who had pre-war experience of the German railway system. After money, food and clothes had been collected, the two men escaped in full daylight through a tunnel already prepared by the compound escape committee. By excellent timing they were in Berlin that evening before their departure had been noticed, and, after boldly spending the night at a small hotel, they went on next day to Mannheim. Here they slept in an air-raid shelter, the city still being very disorganised after a mass air raid a fortnight previously. The next stage of the journey was to Saarbrucken where help was sought, in various French working camps, in obtaining a guide across the frontier. After some disappointments and delays, a Frenchman steered them successfully through all the police checks, and, once in France, McSweyn contacted an organisation which arranged his journey to Gibraltar.

In addition to Chisholm and McSweyn, Sergeant Reed[5] of No. 460 successfully escaped from Lamsdorf. His first attempt to escape by cutting through the wire of the air force compound failed in September 1942. For some months then the chaining of prisoners and increased vigilance of the guards at Lamsdorf prevented escape activities. In March 1943, however, Reed exchanged identities with a man in the working camp, and on 18th April broke away with a German-speaking companion only to be recaptured six days later while hiding on a Swedish ship at Stettin.

[5] P-O W. G. Reed, DCM, 402479; 460 Sqn. Telephonist; of Redfern, NSW; b. Sydney, 15 Jun 1920.

By a second change of identity Reed was able to join a gang working on the railway near Gleiwitz and on 27th July he again escaped to Stettin and enlisted the help of the inmates of a French labour camp—but he was finally betrayed by the mate of a Swedish ship whom he had asked for a safe hiding place. Reed was again returned to Lamsdorf but he was watched very closely and between January and April 1944 all his attempts to join working parties were frustrated by his being identified on muster parades. However, by growing a moustache, cutting his hair short, and removing his dentures, he again successfully changed identities on 10th May and was sent to work in a mine near Beuthen. Despite the Sagan massacre described later, and the assumption by the Gestapo of responsibility for security measures for prisoners of war, Reed determined to continue with his attempt even when a Gestapo search at Beuthen discovered his hidden money and civilian clothing, thus delaying his preparations for about two months. For the third time choosing a companion with linguistic ability, Reed absconded on 11th July 1944 and reached Stettin three days later. The two men hid on a Swedish ship due to sail early on 18th July and with the assistance of an engineer officer escaped discovery during the routine search and within 36 hours were safe in Sweden.

A fifth successful R.A.A.F. escape from Germany held an interesting element of double-bluff. Flight Lieutenant Chinchen had already made abortive efforts to escape from an Italian transit camp in Libya and from Sulmona, and in fact had contrived an opening in the railway truck through which Jones and Eggleston escaped during the transfer of officers from Italian prison camps to Germany in September 1943. This hole was discovered by guards before Chinchen himself could employ it and he was carried on first to Moosburg and then to Fort Bismarck near Strasbourg. This was only a temporary prison, so Chinchen and Lieutenant Hunter,[6] of the A.I.F., with the aid of friends, had themselves cemented inside a bricked-up part of a disused passage on 6th October 1943 when they knew other officers planned a break-out. When the alarm was given the general roll-call indicated these two missing as well as the genuine escapers, and they then emerged from behind the wall and avoided contact with the guards until 9th October when the prison was to be evacuated. They then hid again behind the wall and, as they were already reported missing, no thorough search was made for them. After a safe interval they evaded the sentries left behind to guard civilian internees, and, with a ladder made from bedding, climbed out of the moat and moved westward on foot, travelling only by night as they were still in uniform. After a few days they received help from French peasants, and, abandoning their initial plan to reach Spain, were eventually guided into Switzerland on 17th November. Here Chinchen met Jones, but internment, although under excellent conditions, chafed at their spirits, and on 1st September 1944 they crossed into France with the help of the French Forces of

[6] Lt A. Hunter, MC, VX3439; 2/6 Bn. Tourist; b. Johannesburg, Sth Africa, 23 Feb 1914.

the Interior, and met advancing American troops who arranged their journey to England.

Escapes and attempted escapes, which in some measure had given mental and physical purpose to most prisoners during the first four years of the war, culminated in March 1944 in the tragedy at Sagan. Hitherto German camp authorities had preserved a truly legal attitude towards escapers, and, although isolated instances occurred of prisoners being shot while escaping, this was due more to the excitement or ill-will of individual guards rather than to any overt policy. The mounting success of prisoners had already led during 1943 to the introduction of regular Political Police searches in addition to the camp *Abwehr* security measures, but the hydra-headed escape activities continued despite all set-backs. Stalag Luft III at Sagan caused especial concern to the authorities, for, although it was extremely well laid out and guarded, the standard of escaping knowledge among its predominantly officer complement was very high, and the camp itself lay on sandy soil which made tunnelling operations practicable. Nearly 100 tunnels were begun by prisoners between March 1941 and March 1944 and this continuous activity was well known to the security police who reported frequently on the danger from "these active and mobile men who did not want to do anything except escape". Most of the early tunnels at Stalag Luft III were discovered by strict search procedure, by deep ditches dug across the probable escape lines, or by seismograph sound-detectors at the boundary fences, so in 1943 the prisoners' escape committee began work on a grand design by which no fewer than 200 airmen were to escape at one time.

Three tunnels were begun simultaneously and named "Tom", "Dick" and "Harry". "Tom was blown up by the Germans and this discovery diverted attention from the progress already made on the other two. "Dick" was half constructed and was then used as a storage place for equipment used in "Harry" which was to be the real escape route. Guided by previous failures, this tunnel ran between 25 and 30 feet below the ground, was almost two-feet square in section, and was 364 feet long. A forced-draught ventilation system and emergency lighting facilities were provided by the technicians as well as a waggon train to carry sand back from the face in the tunnel. Besides the miners, the maintenance engineers and a constant stream of men who distributed the excavated earth in small quantities around the camp, scores of other prisoners were busy planning individual escape routes radiating in all directions from Sagan, in forging documents, preparing food, altering clothing and obtaining money by illicit dealings with guards. Despite difficult conditions during a very heavy winter, all preparations were reasonably complete late in March 1944 and the 200 escapers, of whom the first 30 in each 100 were chosen by the escape committee for services rendered, and the rest by ballot among volunteers, were fully equipped. The actual escape had been originally planned for summer, but increasing probes by the German internal security police led to a decision to break out when moon conditions were favourable on 24th-25th March 1944.

A score of Australians made their way after evening roll-call to join the other escapers in the hut concealing the entrance of the tunnel. The night was dark, snow lay on the ground, and there was a likelihood of further wintry conditions when the escape began slightly behind schedule at 10.30 p.m. Only a few men had passed through when movement was halted because of an air raid, all power being switched off and the German guards doubled. After the raid all went smoothly except for minor delays until shortly before 5 a.m. when a guard patrolling in the edge of the woods saw the tunnel mouth and raised the alarm. Those still inside the camp immediately destroyed all incriminating evidence and awaited the inevitable investigation. They were all stripped and searched under icy conditions while they were being identified, and all were threatened with punishment although only Group Captain Wilson was actually sent to the detention barracks on this account. In all, 80 men had gone through the tunnel and the last four were seized immediately and brought back into camp.

The temporary escape of 76 "special category" officers caused immediate consternation and rage in Berlin, and not only was the *Gross Fahndung* operation instituted but Hitler personally ordered that more than half of the men recaptured were to be shot as a deterrent to all other prisoners. The police search was very successful and men were quickly arrested near Kiel in Czechoslovakia, and in Alsace-Lorraine, while 36 who did not get beyond the boundary of Silesia were imprisoned in Gorlitz gaol. Here they were subjected to threats and intimidation in an attempt to discover the ringleaders and circumstances of the plan, and on various dates between 29th March and 6th April they were taken away in small parties ostensibly for return to Sagan. Actually only 15 of the men held in Gorlitz reached Stalag Luft III. The others and 29 held in various police prisons near the point where they were captured were handed over to Gestapo agents. These 50 men with a sickening uniformity of method were shot in small groups on deserted highways.[7] Some who evaded capture for a while were sent secretly to concentration camps near Berlin and in Czechoslovakia but only three officers escaped to England.

The 15 survivors of Gorlitz, including one Australian, were still under close detention in Stalag Luft III when the other prisoners were officially advised that 50 men had been shot "while attempting to escape", but no one doubted that in fact they had been brutally murdered, especially when urns containing the ashes of the deceased began to arrive at Sagan, for it was a strict provision of the Geneva Convention that in no circumstances should the body of a prisoner of war be cremated.[8] This so-called "Sagan order" issued by Hitler was later used implicitly and explicitly to break the spirit of airmen in all camps. It did not entirely prevent individual

[7] Four Australians—Sqn Ldr J. E. A. Williams (of Sydney); Sqn Ldr J. Catanach (Melbourne); F-Lt R. V. Kierath (Killara, NSW); and W-O A. H. Hake (Haberfield, NSW)—were included among the 50 killed in this way. Williams, although a New Zealander by birth, had been reared in Australia.

[8] Seventeen members of the Gestapo were later arrested and appeared before a British War Crimes Tribunal in connection with this atrocity. All were found guilty; fourteen were sentenced to death and the remainder received long terms of imprisonment.

escapes such as that of Reed, but it undoubtedly increased the strain under which all lived. The precarious position of prisoners who feared that such a gross violation of International Law might lead to general atrocities before the final defeat of Germany was worsened in July 1944 when the Chief of the Security Police was implicated in the attempt to assassinate Hitler. The Gestapo then took open control of all police authorities and included prisoners of war within their orbit. Gestapo agents began to work in the interrogation centre at Dulag Luft and throughout the chain of administration of prisoners, although undoubtedly the *Luftwaffe* officials did everything open to them to thwart excessive ill-treatment. The repatriation to England on the grounds of ill-health of the Senior British Officer at Stalag Luft III was secretly expedited by German prisoner-of-war authorities soon after the massacre, with the obvious intention of providing evidence for strong diplomatic pressure against any repetition. Similarly the official agent of the protecting power (Switzerland) was given facilities as discreetly and quickly as possible to visit Sagan and learn the truth from Wilson, who had taken over control of the prisoners.

To men in captivity ringed round by armed and desperate men life inevitably seemed insecure from day to day, especially when it was learned from survivors that one of the Australians "shot while attempting to escape" had in fact been carried out of Gorlitz gaol unable even to walk on badly frost-bitten feet. As a mark of respect to the victims a handsome vault was designed and built by the prisoners with materials supplied by the *Luftwaffe*. This memorial lay outside Stalag Luft III and the stone vault set among garden plots held scrolls bearing all the names of the deceased. Above a large air force eagle a simple inscription ran "In memory of the officers who gave their lives".

During the latter part of 1944 new prisoners, German newspapers and even illicit radios kept camps well-informed as to the fighting on all sides of Germany. Nevertheless this brought new dangers, for the Germans had no intention of losing hold of prisoners, especially airmen who with every Allied advance were withdrawn deeper and deeper into Germany. One of the first camps to be affected was Stalag Luft VI at Heydekrug, which was evacuated late in 1944 as the Russian armies advanced on Memel. The prisoners were herded like sheep into the holds of ships for three nights and two days for the Baltic crossing. They could sleep only by crossing their legs over each other and had only the food they were carrying and no water except seawater. At Swinemunde they were transferred to cattle trucks and taken to Stalag Luft IV, Gross Tychow. From Kiefheide railway station at Gross Tychow, handcuffed in pairs, the heavily-laden prisoners were ordered to march at the double to the camp itself about two miles and a half away. Attempts to discard heavy packs resulted in worse confusion because of the handcuffs, and although the guards cut away some of these impediments the prisoners were stumbling over jettisoned bundles all the way. If a man fell through exhaustion, sickness or after stumbling over a pack, he was either jabbed

in the leg with a bayonet, clubbed with a rifle butt or savaged by dogs until he resumed his pitiable journey. The discarding of packs left many of the prisoners with only the clothes they were wearing to cover them during a cold winter in a very poorly-equipped camp.

On 6th February 1945 these men were moved again, this time marching to Fallingbostel which was reached on 22nd March, but this was only



a temporary refuge and two weeks later the weary columns set out towards the Elbe River. Apart from hunger and exhaustion, they were now pinched into the rapidly-narrowing gap between Russian and Anglo-American armies and suffered machine-gun attacks from aircraft which mistook them for German troops. This nightmare continued until 16th April when they were overtaken and cared for by units of the Second British Army.

Early in 1945, however, several more camps were on the move, mostly by road because of the progressive dislocation of German railways. On 22nd January the men at Lamsdorf began to march to Gorlitz 170 miles away, and completed this journey by 3rd February only to move on once more with the Gorlitz prisoners to Meiningen where the column split into

three parts, airmen moving on to Ziegenhain, 220 miles from Gorlitz, by 12th March. After only a fortnight at Ziegenhain the column turned eastward again. Men at Grottkau and Bankau began similar journeys late in January; of primary importance to R.A.A.F. prisoners, Stalag Luft III was evacuated from Sagan and, while American airmen went to Nuremberg and some of the British to Luckenwalde, south-east of Berlin, the main column of 2,000 British airmen set off for Bremen, where, after some time at the Westertimke camp, Marlag-Milag,[9] originally for naval and merchant seamen, they moved again towards Lubeck.

Frequently the prisoners were given no clear idea where and why they were marching and suspected they were being kept as possible hostages to enable high German officials to secure their own safety. During the early stages of these marches the prisoners were able to secure some cooperation from the guards but, as administrative and supply problems mounted, all suggestions were met with a wearily repeated "it is necessary". Where possible the marchers were accommodated in barracks, but usually barns, empty factories, village halls or even the open air became their sleeping places—even though much of their route lay through snow and slush. Experiences with guards and civilians varied widely from the reviling and flogging of sick prisoners by sadistic fanatics to one instance where an Australian, foraging during a day's halt, lectured (in German) the pupils of the local school concerning Australia and was rewarded by eggs and vegetables fetched from their homes. During the march to Gorlitz a R.A.A.F. compound commander was threatened with shooting because he refused to allow some 80 sick and frostbitten men to continue the journey, but he, like other column leaders, found a useful lever in threatening to hold the guards individually responsible for casualties, and all the columns continually shed their quotas of sick as well as of escapers some of whom found refuge with German civilians. Many of the marchers began by carrying all their possessions on improvised sleds, but when the snow disappeared perambulators were readily available from villagers in return for chocolate, and the longer the marches continued the more fantastic became the appearance of these columns. Many Australians, including those from Sagan, Lamsdorf and Heydekrug were still marching when they were liberated, but towards the end the Germans abandoned hope of transferring camps for there was no longer anywhere to send the prisoners, and the roads were already choked with civilian refugees. Thus, at Muhlberg, Barth and Luckenwalde, the prisoners remained until the tide of liberation reached them. Even then there was some disappointment, for though the camps in eastern Germany were overrun during April, Russian advanced units had no adequate relief services, and, apart from improving the food, were almost as strict in guarding the camps and conducting searches for radios as had been the Germans.

[9] Marlag was the camp for naval prisoners and Milag for merchant seamen.

APPENDIX 1

EXTRACTS FROM THE DIARY OF FLYING OFFICER C. T. O'RIORDAN[1] OF NO. 460 SQUADRON

April 1943

Tuesday 13. Big do on and we're operating. 2,250 gals petrol and ammunition cut down to a minimum. Much speculation as to the target. Austria? Czechoslovakia? New navigator in crew and did cross country in afternoon to try him out. Dropped in at Elsham and saw Blue Freeman whom I'm defending at Ct Martial, since Tom McNiel has gone. Seems to have an outside chance.

Briefing at six. Target Spezia, Italy. They think there are battleships there. Uneventful trip out. The Alps looked like a travel poster. We were bang on course and the first aircraft at the target. The town lights were all on and we could see cars and buses going up and down the streets. Stooged across and had a look. Height 7,000. No ships. Made a second run. Some of the town blacked out. Made a third run and dropped 'em on the docks. Caught in searchlights and lots of light flak.

Climbed into cloud. Extraordinary effect of reflections in cloud, with coloured flak and our own aircraft silhouetted a dozen times. Soon out of trouble and heading for home. After an hour or so Camp asked if we had crossed the Alps. No one had seen them.

Later we passed over lighted towns which hastily blacked out. Hopelessly lost and the navigator couldn't take an astro shot. Later we came over the sea and kept stooging along. Airborne for eight hours and lost. Mitch the WOP finally got a QDM and we set course due south of Southampton. After a while land appeared and we lost height to find where we were. Flak came up to welcome us and we were over Lorient. For good measure our navigator took us over Brest and a convoy. They all had a poop at us. Diverted to Harwell. Bright sunlight and down to 1,000 ft feeling secure when we went straight through the Yeovil balloons. Finally made it, but well overdue—11 hrs 5 minutes in the air. Found we had set course wrongly from target and went bang across Spain and up the Bay of Biscay. Shaky do. Got to Breighton at 4 p.m. and left for London at 5. Caught midnight train.

Thursday 15. Stayed at Golfers' Club. Met crew and the WingCo at the Codgers; did a pub crawl. Finished up at the New Yorker. Quite a day.

Friday 16. Went for a steak dinner with the boys and W/C Martin.

Saturday 17. Was going to Taunton on Sea to visit Brian and Babs Smith, but fate otherwise decreed. Tamagno and McLaughlan rolled in and then Jimmy Crabb who didn't know he'd been given a gong that

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[1] F-O C. T. O'Riordan, 403397. 103 Sqn RAF, 460 Sqn. Barrister-at-law; of Sydney; b. Mascot, NSW, 12 May 1909. Killed in action 29 Jul 1943.

morning. Party—finished up at the old pub in Watling Street. Stan Ricketts in fine form climbing lamp posts.

Sunday 18. Got to Mass. At 12.30 I arrived in the Strand to quench a great thirst. There wasn't a taxi, pedestrian or even stray cat in Fleet St, but when I turned the corner there must have been 50 Australian airmen waiting outside Codgers for it to open. Went with George Peterson for dinner.

Monday 19. Peterson and I met 2 nice show girls from George Black's revue. Went to Star Spangled Rhythm.

Tuesday 20. Just about to leave London when I ran into Pat Crennan. He's a Sq Ldr and came over with a draft of airmen. Caught train to Scunthorpe and met by Blue Freeman who drove me to the camp.

Wednesday 21. Court Martial. G/C Edwards VC, DSO, DFC, the President. They laid it on thick for Blue, but the country police were just a piece of cake in cross examination and to my surprise and delight we got away on every charge. Celebration later at Scunthorpe with Blue and Jake Kennard, my old skipper.

Stayed at the Oswald as guest of the Harrisons.

Thursday 22. Travelled to Leeds and stayed the night.

Friday 23. Good Friday, but no stations at our church. Incidentally we use the little Methodist chapel for Mass on Sundays!

Monday 26. Duff weather. Ops scrubbed.

Wednesday 28. Still the same. Brassed off.

May

Saturday 1st. Detailed to make a speech at a Wings for Victory rally at Allerton. Got there and no crowd. Only 24 hours late.

Sunday 2. Ops scrubbed when the aircraft were running up. Went to the 7 Sisters with WingCo and Speare.

Monday 3. Another scrub. Party in the mess.

Tuesday 4. Ops Dortmund. Good show. 19 kites on from Breighton. Jaekel's crew missing and 5 kites from Holme. Jaekel's observer Russ used to be a bullock driver and timber getter in Queensland. Quite a character.

Thursday 6. Ops on again but scrubbed at 5.30.

Friday 7. Another scrub. F/O Anderson and F/S Fuhrmann have been given immediate gongs for their last show. They are still in hospital.

Saturday 8. The stationary front is still about and another scrub.

Sunday 9. I'm O/C advance party to Binbrook. Leaving tomorrow. Another scrub and had a farewell party at the Terry.

Monday 10. Travelled to Binbrook with 5 Fl/Sgts and 20 erks. Getting things in order for the squadron. Lot of S.H.Q. deadbeats here.

Tuesday 11. Run off my feet. Have signed for 3 hangars and four living blocks. Every detail needs my signature. Why?

Wednesday 12. My birthday, but no chance to celebrate. The boys went to Duisburg tonight and it was Laurie Simpson's last trip. Got through on 3 engines. Had a beer in the village before turning in.

Thursday 13. Still cracking on amidst glorious confusion. The boys bashed Bochum. That sounds like "Truth".

Friday 14. The squadron started arriving by glider at 8.30. By midday most of the ground crew and equipment were here. In the afternoon the Lancaster party arrived with the ground crew of each kite. Hell of a flap getting them all settled in. Went back to Farewell to Breighton by glider. Party started with shoot up of mess by Grant in a Lanc. Next item a pyrotechnic display by Camp which grounded aircraft for miles around. Two motor bikes in the mess and G/C Crummy got a black eye when thrown through a screen.

I slept in the mess from 5 a.m. after playing accompaniment to Mochetty on the violin.

Saturday 15. Party resumed at 10 a.m. Dale with a Very pistol made everyone drink a 460 special. Quite a bright party. Tried to ride a horse in the field and fell off. Was going back in Bruce Bennett's car (4d a pound peas) till I found he had no clutch or brakes. Bought Phil Ward's car on the spot and drove myself to Binbrook. Arrived at 1 a.m.

Sunday 16. Arm a bit sore. Saw the Doc and he put it in splints. Says its fractured.

Monday 17. Into Grimsby for X-ray. The Doc was right. Comminated fracture of the lower radius. Felt a fraud when an old lady offered me a seat in the bus coming back. Look like a red cross poster.

Tuesday 18. Five fresher crews on a mining stooge to the Gironde. All back safely.

Wednesday 19. Have to make an official statement of my "wound" to Air Ministry. Wouldn't it!

Thursday 20. No ops. Cross country practice for six crews.

Friday 21. No ops. Drove to Tielby with Frank Arthur, Cappi and Eddie Hudson. Lovely spot with Tennyson's "Brook" running past the pub.

Saturday 22. Still no ops. Liberty bus to Grimsby. Went to the Officers' Club and danced a while. Bennett sold his "Granny Smiths a bob a dozen. They're nice!"

Sunday 23. Ops Dortmund. Biggest effort yet by Bomber Command.

Monday 24. Fuhrmann's Kite "B Beer" an awful mess. 150 holes by fighters and no one hurt. Gongs have been given to Ted McKinnon, Geoff Heath, Moore and Saint-Smith. Hadley won the "picture pool" for last night on Dortmund. Stiffy Horne is very proud.

Tuesday 25. Ops Dusseldorf. 26 on.

Thursday 27. Five aircrew were told to parade outside the mess at 11 oc. Didn't know what it was all about but Camp told me to be there. At 11 their Majesties arrived. I tried to hide behind Panos, but the King asked me what happened to my arm. The A.O.C. was there, but I told him the truth. He laughed like hell and said "Did you borrow the horse or scrounge it". I told him I scrounged it. The Queen was grand.

Ops were on to Essen. Nothing for me to do so drove to Market Rasen with Frank Arthur.

Friday 28. Stand-down. Mac and I went to a "musical evening" in Grimsby and came back in time for the Sergeants' dance.

Saturday 29. Ops again. 2 crews missing.

Monday 31. Stand-down. Into Grimsby for another X-ray. A chap in the guard room tried to commit suicide by cutting his throat.

Ivan Galbraith and Tom Osborn have got their commissions.

June

Tuesday 1st June. On leave. Got to London at 6 p.m. No trouble with seats or porters with arm in sling. Booked in at Waldorf and went to Codgers.

Wednesday 2. The whole crew arrived and I took a room with Camp at the Strand Palace.

Thursday 3. Struck Hilde Marchant of the Daily Mirror at "El Ninos" and did a club crawl with her.

Friday 4. Fire watching at the Temple with Camp and Spud Murphy. Met Anne Matheson for a beer.

Saturday 5. Quiet day at the pictures.

Sunday 6. Another quiet day with lots of walks and food and picture shows.

Monday 7. Met Hilde again with Alec Abbey. Did a crawl. Later in evening an air alert and had great fun with the people coming down to the lounge in pyjamas.

Tuesday 8. Went to press pre-view of "Col Blimp". Damn good. Stayed with Abbey till train time at 11.15.

Wednesday 9. Back at 8.30. Two new crews as raw as carrots. Ops scrubbed at 10 p.m.

Thursday 10. Stand-down. Formation flying in afternoon. Went by bus to Grimsby and struck "Count" Doleman, now a P/O and doing an A.G.1 course at Mamby. He has a guards moustache and takes snuff, but all in fun.

Friday 11. Ops again. 27 on and one missing.

Saturday 12. Ops on. Two crews missing. Hadley and Stiffy Horne and Bennett from the mess. No more "4d a pound peas". Cope's crew got an incendiary from one of our own kites and Hugh Gordon put the fire out.

Monday 14. Went in for another X-ray. Grimsby was raided last night, very lightly. The people look very tired. Wonder how they feel in the Ruhr. Ops again. 23 on and 3 crews missing. Not so good.

Tuesday 15. Bulls eye exercise. A bus ran to Cleethorpes. Max Keddie and Ron Friend have been given DFCs.

Thursday 17. It was announced today that 9 gongs had been given to 460 this week. Good show. The boys earn them.

Friday 18. Frank Arthur, Ern Cappi, Tommy Liddle and self drove in "F for Frippet" to Holbeck Manor. Lovely place with an artificial lake

full of fat trout. Mrs. Green turned on eggs and strawberries and cream and we had a fine time. Ran out of gas on our way home. A farmer fixed us up with more than we had when we started.

Saturday 19. Went to Stallinboro with Gwynne Thomas to the "Green Man". Got on well with opera singer Joyce Ash.

Sunday 20. Ops. Mining in Gironde. Giles finishes his tour. McLaughlan has been posted to Lindholme and MacWilliam is taking his place.

Monday 21. Ops. Krefeld. 1 crew missing. To date we (on this squadron) have dropped 3,000 tons of bombs, made 1,477 sorties and lost 61 aircraft.

Tuesday 22. Camp has been posted to Lindholme. Have to get another skipper. Had another Ct Martial today for AC2 Lee. I defended him on a similar charge at Breighton and since he only got 26 days detention that time thought he would go AWL again. Think they'll throw the book at him this time.

Wednesday 23. Stand-down. Drove with Arthur to Louth and got some tomatoes and mushrooms.

Thursday 24. Fighter affiliation in morning. Baron Keys came over in the afternoon and seemed quite happy at Lichfield. Ops were on and Wuppertal the target. Stooke's crew did not return.

Friday 25. Ops again. P/O Naylor shot the following line. When asking what was doing was told that he was on another Ruhr bash. He said "I'm sick of that bloody place." He made his first trip there last night.

Saturday 26. Stand-down. Bulls eye exercise. 3 on. Sgts mess party. Cappi got tangled up with Spanner and was in good voice.

Sunday 27. 3 crews on gardening all returned safely.

Monday 28. Ops again. 17 crews on. All came back. The country round Tielby is very beautiful. Tennyson's Brook runs thru the village.

Tuesday 29. Dr. Evatt visited the Squadron with A.V.M. Wrigley.

Someone who continued the diary after O'Riordan's death wrote under the date 29th July:

24 aircraft from Squadron attacked Hamburg, and from reports raid was very concentrated. More searchlights were reported than before and these appeared to line the route in, leaving the actual path itself in darkness; flak was being pumped up in the searchlight zones. Pilots stated they saw many fighters milling in the dark areas.

Unfortunately the Squadron lost two aircraft on this do, F/Sgt Fuhrmann DFM and F/O Johnson being the captains. F/Sgt Fuhrmann and his crew had been through many shaky dos together as they almost invariably seemed to be shot up and he and his navigator F/O Anderson had both received decorations for bringing their aircraft back under difficulties on a previous occasion.

F/O Johnson's crew contained a number of old identities of the Squadron including Cliff O'Riordan. Cliff had been in the Squadron since August 1942 doing his first tour and had been regarded as one of the Squadron fixtures. He had acted as defending officer to most of the Courts Martial

in the Group and had the record of getting the majority of his clients off. He was a K.C. from Sydney and had defended many cases there. . . . As one of the oldest members of the Squadron he had been compiling the Squadron history. He will be sadly missed by everyone in the Group and it is hoped that he will be found to be a prisoner of war.

APPENDIX 2

DIRECTIVE TO SUPREME COMMANDER ALLIED EXPEDITIONARY FORCE

(Issued 12 February 1944)

1. You are hereby designated as Supreme Allied Commander of the forces placed under your orders for operations for liberation of Europe from Germans. Your title will be Supreme Commander Allied Expeditionary Force.

2. *Task.* You will enter the continent of Europe and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces. The date for entering the Continent is the month of May, 1944. After adequate Channel ports have been secured, exploitation will be directed towards securing an area that will facilitate both ground and air operations against the enemy.

3. Notwithstanding the target date above you will be prepared at any time to take immediate advantage of favourable circumstances such as withdrawal by the enemy on your front, to effect a re-entry into the Continent with such forces as you have available at the time; a general plan for this operation when approved will be furnished for your assistance.

4. *Command.* You are responsible to the Combined Chiefs of Staff and will exercise command generally in accordance with the diagram [below]. Direct communication with the United States and British Chiefs of Staff is authorized in the interest of facilitating your operations and for arranging necessary logistic support.

5. *Logistics.* In the United Kingdom the responsibility for logistics organization, concentration, movement, and supply of forces to meet the requirements of your plan will rest with British Service Ministries so far as British Forces are concerned. So far as United States Forces are concerned, this responsibility will rest with the United States War and Navy Departments. You will be responsible for the coordination of logistical arrangements on the continent. You will also be responsible for coordinating the requirements of British and United States Forces under your command.

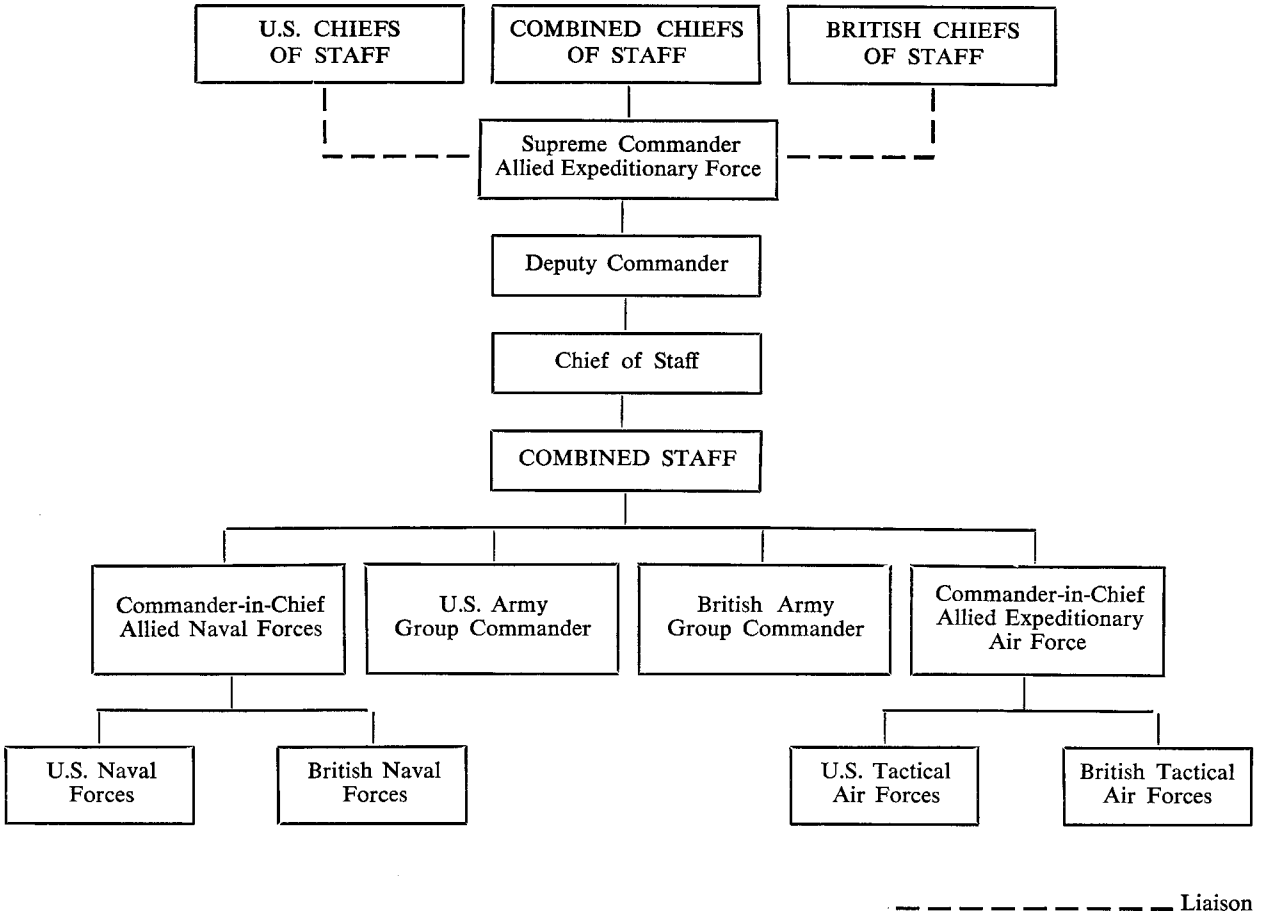
6. *Coordination of operations of other Forces and Agencies.* In preparation for your assault on enemy occupied Europe, Sea and Air Forces, agencies of sabotage, subversion, and propaganda, acting under a variety of authorities, are now in action. You may recommend any variation in these activities which may seem to you desirable.

7. *Relationship to United Nations Forces in other areas.* Responsibility will rest with the Combined Chiefs of Staff for supplying information relating to operations of the Forces of the U.S.S.R. for your guidance in timing your operations. It is understood that the Soviet Forces will launch an offensive at about the same time as OVERLORD with the object of preventing the German forces from transferring from the Eastern to the

Western front. The Allied Commander in Chief, Mediterranean Theatre, will conduct operations designed to assist your operation, including the launching of an attack against the south of France at about the same time as OVERLORD. The scope and timing of his operations will be decided by the Combined Chiefs of Staff. You will establish contact with him and submit to the Combined Chiefs of Staff your views and recommendations regarding operations from the Mediterranean in support of your attack from the United Kingdom. The Combined Chiefs of Staff will place under your command the forces operating in Southern France as soon as you are in a position to assume such command. You will submit timely recommendations compatible with this regard.

8. *Relationship with Allied Governments—the re-establishment of Civil Governments and Liberated Allied Territories and the administration of enemy territories.* Further instructions will be issued to you on these subjects at a later date.

CHAIN OF COMMAND



APPENDIX 3

R.A.A.F. CASUALTIES IN ALL THEATRES

Tables "A" to "E" show all "major casualties" (i.e. casualties that have to be reported to the next of kin) from 3rd September 1939 to 15th August 1945 except for illnesses not resulting in death and 631 men who were missing but later returned safely.

TABLE A.

(i) R.A.A.F. CASUALTIES—CAUSES.

Air operations excluding known air accidents	7,082
Known air accidents	4,496
Ground battle	266
Ground accidents and other causes	1,568
Deaths from illness	342
Total	13,754

(ii) R.A.A.F. CASUALTIES—TYPES OF UNIT.

Operational squadrons	8,884
E.A.T.S. schools	1,070
O.T.U's and other flying schools	1,762
Other units	2,038
Total	13,754

i ii) R.A.A.F. CASUALTIES—MUSTERINGS.

Air casualties	
Pilots	5,131
Navigators	2,312
W.A.G's	2,328
Air gunners	1,210
Technical air gunners	238
Ground musterings	358
Ground casualties	
Aircrew	399
Ground musterings	1,778
Total	13,754

(iv) R.A.A.F. CASUALTIES—CATEGORIES AND RANKS.

	Dead or presumed dead	Wounded and Injured	Total
Officers	3,760	774	4,534
Airmen	6,802	2,418	9,220
Total	10,562	3,192	13,754

TABLE A.—*continued*

(v) R.A.A.F. CASUALTIES—BY MONTHS.

	1939	1940	1941	1942	1943	1944	1945	Total
Jan		4	31	257	312	378	348	
Feb		2	32	232	171	303	324	
Mar		4	24	263	241	369	355	
Apr		3	60	225	331	370	251	
May		12	38	238	310	388	131	
Jun		8	65	326	289	464	85	
Jul		6	73	311	280	387	146	
Aug		20	81	318	425	369	44	
Sep	3	12	61	276	431	314		
Oct	2	9	107	210	278	290		
Nov	4	21	106	177	374	293		
Dec	9	27	172	225	356	293		
Total	18	128	850	3,058	3,798	4,218	1,684	13,754

TABLE B.

R.A.A.F. Casualties, by areas to 15th August 1945. (Deaths from illness are in brackets.)

	Died	Injured	Total
Europe	5,397 (26)	947	6,344
Middle East	1,135 (9)	413	1,548
Canada	147 (5)	55	202
India-Burma	242 (3)	89	331
Far East	136	44	180
South-West Pacific	3,342 (298)	1,614	4,956[1]
Other Areas	163 (1)	30	193
		Total	13,754

Of a total of 1,122 non-flying personnel who died 1,009 were in the South-West Pacific Area.

[1] Includes casualties in Australia not on operations or in operational areas.

TABLE C.

Casualties to R.A.A.F. personnel in European Theatre to 15th August 1945.

	Dead	Injured
Bomber Command	3,486	265
Fighter Command	191	49
Coastal Command	408	113
Other forces and units	478	151
O.T.U's and similar schools	724	298
Other training schools and units	110	71

TABLE D.
R.A.A.F. Aircrew Casualties: By musterings by areas
O=Officers A=Airmen
D=Died I=Injured

Theatre		Pilots		Navigators		W.A.G's		A.G's		Tech. A.G's		Total
		D	I	D	I	D	I	D	I	D	I	
Air operations												
S. & S.W. Pacific	O	293	38	109	14	64	6	5	1	1		531
	A	105	19	82	8	231	34	46	4	85	8	622
Far East	O	14	6	6	1	2						29
	A	11	7	7	3	23	8	1	1			61
India-Burma	O	44	5	24	2	15	1	1				92
	A	32	12	13	5	36	3	3	1			105
Europe	O	995	65	381	30	163	7	111	5	7		1,764
	A	454	60	596	33	662	52	693	53	60	10	2,673
Middle East	O	192	52	59	10	28	2	6	2			351
	A	213	56	122	10	202	29	37	7	1		677
Canada	O	3		2		2						7
	A	1		2		3		1				7
Other areas	O	23	2	9	1	3		1				39
	A	7		5	2	26	6	6	2	12		66
Total	O	1,564	168	590	58	277	16	124	8	8		2,813
	A	823	154	827	61	1,183	132	787	68	158	18	4,211
Known air accidents												
S. & S.W. Pacific	O	382	115	65	24	50	3	2				641
	A	413	187	132	38	156	47	9	6	15	8	1,011
Far East	O	6		1								7
	A	1	2	2		1		1				7
India-Burma	O	28	18	2	2	5	4					59
	A	20	15	4	5	6	8					58
Europe	O	200	110	78	37	30	13	11	6			485
	A	380	181	197	70	188	70	105	67	8	22	1,288
Middle East	O	54	45	11	14	5	7	1				137
	A	68	52	31	17	46	36	6	5			261
Canada	O	16	4	5		3						28
	A	57	21	19	4	23	7		2			133
Other areas	O	8	2	2	1	2						15
	A	30	7	12	3	10		2		1		65
Total	O	694	294	164	78	95	27	14	6			1,372
	A	969	465	397	137	430	168	123	80	24	30	2,823
Grand Total to 15 Aug 1945	O	2,258	462	754	136	372	43	138	14	8		4,185
	A	1,792	619	1,224	198	1,613	300	910	148	182	48	7,034

TABLE E.
Casualties among R.A.A.F. aircrew in air operations South and South-West Pacific

Type of squadron		Pilots		Navigators		W.A.G's		A.G's		Tech. A.G's		Total
		D	I	D	I	D	I	D	I	D	I	
General recce— light bomber	O	57	10	34	3	31	5					140
	A	17	2	12	2	93	15	6				147
Torpedo	O	16		7		5						28
	A	5	1	13		34	4					57
General recce— flying-boat	O	36	4	14		14						68
	A	11		4		22	4	1		70	7	119
Medium bomber	O	5		3								8
	A	2		3	1	13	4	9	3			35
Dive bomber	O	1		3								4
	A	3	1		1							5
Interceptor fighter	O	61	7									68
	A	38	8									46
Attack long-range fighter	O	50	6	24	2	2						84
	A	11	2	28	3	13	4					61
Tac. recce	O	18	5		2							25
	A	2		3								5
General purpose	O	8	1		3							12
	A	2	2	4		6						14
Transport land	O	4	1	1								6
	A	1		1								2
Heavy bomber	O	14		12	1	7	1	1	1	1		38
	A	3		7		18	1	24	1	7		61
Miscella-neous squadrons	O	2										2
	A											
200 & 201 Flights	O	6		5		3		4				18
	A			1		5		5		4		15
A.S.R. flights	O				1							1
	A									1	1	2
Air observation posts	O		1									1
	A											
O.T.U's	O	2	1	2	1							6
	A	4		4		12	1					21
Other units	O	6	2	1								9
	A	1	3	1		4						9
American units	O	7		3	1	2						13
	A	5		1	1	11	1	1		3		23
Total to 15 Aug 1945	O	293	38	109	14	64	6	5	1	1		531
	A	105	19	82	8	231	34	46	4	85	8	622

TABLE F.

Members of R.A.A.F. reported missing, prisoners or interned who later returned safely.

	S.W.P.A.		Far East		India-Burma		Europe		Middle East		Canada		Other Areas		Total	
	O	A	O	A	O	A	O	A	O	A	O	A	O	A	O	A
Missing, now returned safe	48	97	11	15	6	7	148	191	32	70	1		4	1	250	381
Interned, now returned safe							13	20	1	4				2	14	26
P.O.W. Interned now returned safe									1						1	
P.O.W.																
(i) Repatriation under Geneva Convention							11	6	6	5					17	11
(ii) Escaped or released after conclusion of hostilities	18	9	36	158	6	5	312	438	80	105					452	715
(iii) Escaped German camps							2	1	2	3					4	4
(iv) Escaped Japanese camps				1												1
(v) Sub-total P.O.W. returned safe	18	9	36	159	6	5	325	445	88	113					473	731
Total of returned safe	66	106	47	174	12	12	486	656	122	187	1		4	3	738	1,138

TABLE G.

(i) Members of R.A.A.F. who died as prisoners in German hands.

Cause of death	Officers	Airmen	Total
Killed by Allied bombing or strafing	—	2	2
Killed attempting to escape from prison camps	2	1	3
Died of wounds, illness or ill-treatment	11	9	20
Grand Total	13	12	25

(ii) Members of R.A.A.F. who died as prisoners in Japanese hands.

Cause of death	Officers	Airmen	Total
Executed by the Japanese	19	27	48*
Members recorded as "missing believed P.O.W." who are known to have been in Japanese hands but are still unaccounted for and are now presumed dead	5	9	14
Reported by the Japanese to have been killed by Allied bombing	2	7	9
Died of illness, ill-treatment etc.	4	25	29
Died of injuries received in aircraft crash	1	1	2
Drowned as a result of transport being sunk	—	25	25
Grand Total	31	94	127*

*Includes two unidentified members

APPENDIX 4

ABBREVIATIONS, DEFINITIONS AND CODE NAMES

AASC—*Australian Army Service Corps.*
ACF—*Australian Comforts Fund.*
ACHU—*Aircrew Holding Unit.*
ACM—*Air Chief Marshal.*
ADEM—*Air Defence Eastern Mediterranean.*
ADGB—*Air Defence of Great Britain.*
Adm—*Admiral.*
AEAF—*Allied Expeditionary Air Force.*
AF—*Air Force.*
AFU—*Advanced Flying Unit.*
AHQ—*Air Headquarters.*
AIF—*Australian Imperial Force.*
ALG—*Advanced Landing Ground.*
AMHERST Operation—*Airborne drop of S.A.S. troops in Holland, 7th-8th April 1945.*
ANVIL Operation—*Plan for Allied invasion of southern France (later DRAGOON, August 1944)*
AOC—*Air Officer Commanding.*
ARCADIA Conference—*At Washington, December 1941.*
Armd—*Armoured.*
ARP—*Air Raid Precautions.*
ASC—*Air Support Command.*
ASR—*Air-Sea Rescue.*
ASV—*Air-to-Surface Vessel (airborne radar search device).*
ATS—*Armament Training Station.*
AVALANCHE Operation—*Allied landings at Salerno, Italy, September 1943.*
AVM—*Air Vice-Marshal.*

B—*Bomber.*
BAF—*Balkan Air Force.*
BBC—*British Broadcasting Corporation.*
BCOF—*British Commonwealth Occupation Force.*
BEF—*British Expeditionary Force.*
BGS—*Brigadier, General Staff.*
Bn—*Battalion.*
BUCO—*Build Up Control.*

C—*Coastal.*
CCOS—*Combined Chiefs of Staff.*
Cd—*Command.*
C-in-C—*Commander-in-Chief.*
CIRCUS—*Operations by bombers or fighter-bombers, escorted by fighters and designed primarily to bring enemy fighters into action.*
CLARION Operation—*Coordinated air strike on German communications targets, February 1945.*
Cmdre—*Commodore.*
COBRA Operation—*U.S. Army offensive in Normandy, July 1944.*
Comd—*Commanded.*
Comdg—*Commanding.*
CORK Operation — *Coastal Command anti-submarine patrols, 1944.*
COSSAC—*Chief of Staff to the Supreme Allied Commander.*
Coy—*Company.*
Cpl—*Corporal.*
CROSSBOW—*The campaign against V-weapons.*
CRTS—*Commonwealth Reconstruction Training Scheme.*
CS—*Chief of Staff.*

Dep—*Deputy.*
DIADEM—*The assault to effect a union between the main front and the Anzio beach-head, May 1944.*
Dir—*Director.*
Div—*Division.*
Diver—*Code name for the V-1.*
Do—*Dornier.*
DOOMSDAY Operation—*Airlift of the 1st British Airborne Division to Norway, 8th-27th May 1945.*
DRAGOON Operation—*The invasion of southern France, August 1944.*

EATS—*Empire Air Training Scheme.*
EFTS—*Elementary Flying Training School.*
ELS—*Emergency Landing Strip.*

F—*Fighter.*
Fd—*Field.*
Flt—*Flight.*
F-Lt—*Flight Lieutenant.*
F-O—*Flying Officer.*
F-Sgt—*Flight Sergeant.*
FW—*Focke-Wulf.*

GA—*Ground Attack.*
GAF—*German Air Force.*
GARDEN Operation—*Army operation in conjunction with MARKET, September 1944.*

Gee—*Airborne semi-radar position-finding device.*
Gen—*General.*
G-H—*Blind-bombing radar device.*
GOC—*General Officer Commanding.*
GOODWOOD Operation — *Twenty-first Army Group offensive south of Caen, July 1944.*
GP—*General Purpose.*
Gp—*Group.*
Gp Capt—*Group Captain.*
GR—*General Reconnaissance.*
GYMNAST Operation—*Plan for landings in French North Africa (later became TORCH).*

H2S—*Airborne-position-finding device.*
HCU—*Heavy Conversion Unit.*
He—*Heinkel.*
HE—*High Explosive.*
HOARDING—*German long-range aircraft reporting device.*
HQ—*Headquarters.*
HURRICANE Operation—*Plan for co-ordinated air strike on German communications targets, 1944.*
HUSKY Operation—*The invasion of Sicily, July 1943.*

Inf—*Infantry.*
ITS—*Initial Training School.*

JAPEO—*Joint Air Plan and Executive Order.*
JATP—*Joint Air Training Plan.*
Ju—*Junkers.*

KT Ship—*Kriegstransport.*

LG—*Landing Ground.*
LR—*Long Range.*
LRB—*Long-Range Bomber.*
Lt—*Lieutenant.*
Lt-Gen—*Lieut-General.*

MAAF—*Mediterranean Allied Air Forces.*
MACAF—*Mediterranean Allied Coastal Air Force.*
MANDREL—*Method of radio jamming enemy early-warning system.*
MARKET Operation—*Airborne landings at Arnhem, September 1944.*
MASAF—*Mediterranean Allied Strategic Air Force.*
MATAF—*Mediterranean Allied Tactical Air Force.*
Me—*Messerschmitt.*
ME—*Middle East.*
MF—*Beacons used to transmit information to German fighters.*
MFCU—*Mobile Fighter Control Unit.*
Mk—*Mark.*
MOVCO—*Movement Control.*

NAAF—*North-West African Air Forces.*
NAAFI—*Navy, Army and Air Force Institutes.*
NASAF—*North-West African Strategic Air Force.*
Nav—*Navigator.*
NCO—*Non-commissioned Officer.*
NF—*Night Fighter.*
NOBALL—*Campaign against V-weapon sites and supply depots.*

Oboe—*Target-marking and blind-bombing device utilising radio beams.*
OBU—*Operational Base Unit.*
Offr—*Officer.*
OKW — (*Oberkommando der Wehrmacht*). *The High Command of the German Armed Forces.*
Ops—*Operations.*
ORB—*Operations Record Book.*
Ord—*Ordnance.*
OTU—*Operational Training Unit.*
OVERLORD Operation—*The Allied invasion of France, June 1944.*

PDRC—*Personnel Dispatch and Reception Centre.*
PFF—*Pathfinder Force.*
PLUNDER Operation—*Crossing of Rhine, 23rd March 1945.*
P-O—*Pilot Officer.*
POINTBLANK—*The 1943 directive for the combined bomber offensive.*
POL—*Petrol, Oil and Lubricants.*
POW—*Prisoner of War.*

QUADRANT Conference—*At Quebec, August 1943.*

RAAF—*Royal Australian Air Force.*
RAF—*Royal Air Force.*
RAN—*Royal Australian Navy.*
RAMROD—*An operation similar to CIRCUS, except that its principle objective was the destruction of the target.*
RCAF—*Royal Canadian Air Force.*
Regt—*Regiment.*
RNVR—*Royal Naval Volunteer Reserve.*
RNZAF—*Royal New Zealand Air Force.*

RODEO—*Fighter sweeps over enemy territory without bombers.*
ROUND-UP Operation—*Planned operation against the coast of France (later became OVERLORD).*
RP—*Rocket Projectile.*
R and RS—*Refuelling and Rearming Strips.*
R-T—*Radio-Telephone.*

SAAF—*South African Air Force.*
SAS—*Special Air Service.*
SASO—*Senior Air Staff Officer.*
SCAEF—*Supreme Commander Allied Expeditionary Force.*
SE—*Single engined.*
SEA—*South-East Asia.*
SEO—*Senior Education Officer.*
SEXTANT Conference—*At Cairo, November 1943.*
SHAEF—*Supreme Headquarters Allied Expeditionary Force.*
SLEDGEHAMMER Operation—*Plan for a landing on the Continent to secure a limited bridgehead.*
SM—*Savoia-Marchetti.*
SOE—*Special Operations Executive.*
Sqn—*Squadron.*
Sqn Ldr—*Squadron Leader.*
Stn—*Station.*
STRANGLE—*Air interdiction campaign on enemy communications, Italy 1944.*

TAC—*Tactical Air Command.*
TAF—*Tactical Air Force.*
TCC—*Troop Carrier Command.*
TE—*Twin engined.*
TI—*Target Indicator.*
TORCH Operation—*The Allied invasion of North-West Africa, November 1942.*
TOTALIZE Operation — *The Canadian Army offensive at Falaise, August 1944.*
TR—*Tactical Reconnaissance.*
TRACTABLE Operation—*The Canadian Army offensive at Falaise, August 1944.*
TRIDENT Conference—*At Washington, May 1943.*

USAAF—*United States Army Air Force.*
USSTAF—*United States Strategic Air Forces in Europe.*

VARSITY Operation—*Airborne operation for crossing the Rhine, 23rd March 1945.*
VHF—*Very High Frequency.*

WAAAF—*Women's Auxiliary Australian Air Force.*
WAG—*Wireless-Air Gunner.*
WANGANUI Flares—*Method of sky-marking a target by coloured markers dropped blindly on H2S.*
W Cdr—*Wing Commander.*
WINDOW—*Metallized strips dropped by aircraft to disrupt enemy radar systems.*
W-O—*Warrant Officer.*
W-T—*Wireless Telegraphy, Wireless Telegraphist.*

YMCA—*Young Men's Christian Association.*

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